A MANUAL FOR SAFETY EDUCATION IN HIGH SCHOOLS

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INTRODUCTION

When one reads that in 1936 alone in the United States of America 111,000 human lives were sacrificed through accidents and that over 95 per cent of these accidents could have been prevented, one should begin to realize the seriousness of this menace. The last twenty years have added the new problem of motor vehicle casualties, which in 1937 in our country alone took the lives of more than 40,000 human beings, and left over 1,000,000 persons injured with an estimated property loss of $2\frac{1}{2}$ billion dollars.[1]

The data above make one realize the truth of the oft repeated statement that "peace times are more deadly than war".

These unfortunate happenings are in most part results of carelessness or ignorance. The remedy, therefore, is education.

Everyone is familiar with the changes that have come about in methods of transportation during the past twenty-five years, but it is not always fully realized that there has been similar changes in industry, the use of labor-saving machinery, such as electric sewing machines, washers, and the like in the home. The child who has developed the proper attitudes toward the prevention of accidents will make a much more desirable member of society than one who lacks such attitudes, whether he be engaged in industrial, commercial, domestic, or other pursuits.

One great need of the world today is for its inhabitants to have the proper safety attitude. The graduate of any school who has, along with his other educational accomplishments, developed this attitude is assured

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1 Accident Facts, National Safety Council, 1937, p. 57

of greater consideration and more rapid advancement than if he were lacking in this respect, regardless of the vocation or profession he may choose as a life work.

This manual contains suggestions for bringing this serious national question to the consciousness of pupils. The activities suggested are not offered as complete or finished materials to be accepted blindly. They are illustrative of the many possibilities for teaching safety. It is hoped that the use of these and similar suggestions will enable girls and boys to develop an appreciation of the great problem of accident prevention and a feeling of personal responsibility for the betterment of the conditions under which we survive. Accident prevention is not an indefinite problem to be solved in the future. The world is confronted by it here and now. Our responsibility cannot be put aside or left until a more convenient time. The ideal of safety will not be accomplished until every citizen learns so to control his own actions as never to be subject to censure for causing a preventable accident. With this attitude of mind developed in the pupils of the secondary schools, and by them carried into all walks of life, future tabulations will show a sharp decline in the number of accidental injuries and deaths.

For several years, elementary schools have taught safety habits. But the training given in the elementary schools has rarely gone beyond the level of habit formation or the realm of child life, which is as it should be.

The safety work of the elementary school has extended up into the junior high school, where emphasis has continued to be on habits, but not habits alone. Much responsibility has been given the pupils through school safety organizations.

But safety instruction has scarcely reached the senior high school -- a fact to be greatly regretted, for at this level, insights, appreciations, and attitudes can be built upon the basis formed by the many experiences of earlier years in such a way as to be really effective in adult life. Boys and girls of the senior high school age are already living largely in an adult world, and accident prevention is one of the problems with which that world has not as yet been able to cope successfully. It is true, of course, that habits must receive due attention even at this level, for these young people are engaging in new types of activities, of which one is driving their own cars. But the prime need is for developing those adaptable controls of conduct, such as insight and appreciations, which will enable them to cope with an ever widening environment. New problems of safety are appearing almost daily. For example, only a short time ago the newspapers carried accounts of tests that were made which showed that just as much care must be exercised to prevent fires by dropping lighted materials from airplanes as by throwing them from automobiles. The test showed that a lighted cigar or cigarette dropped from an airplane at an altitude of 500 to 1,000 feet is more likely to start a forest fire than one thrown from an automobile in the same area.

Although the need for safety instruction in senior high schools is obvious, the method is not clear. An already over-crowded curriculum does not readily suggest additions, especially of subject matter that should be taught to all pupils. There is apparently one remedy; that is, to teach safety in conjunction with the existing secondary school curriculum. At first, this solution to the predicament seems both simple and an imposition upon the subjects and the teachers of the subjects. While

on the other hand even this difficulty is clarified. Subjects are taught not merely for the value you can get from that particular subject, but in order that they may function in so-called everyday life. In so far as home economics, science, mathematics, English, or other subjects have something to contribute toward the safety of people, these subjects should be so taught as to secure such values, and in so doing possibly will enhance the subjects in the eyes of the pupils. In many fields, attention has frequently been given to making subjects practical. Closely related to this movement is motivation and a search for vital written and oral composition materials. Safety is an answer to both of these problems.

Almost every subject of the senior high school curriculum presents opportunities for safety instruction. Some, such as shops and science, are already making contributions. In most fields, however, these possibilities have rarely ever been utilized. This manual is an attempt to arouse interest in the safety problem, present some facts and figures to show where safety is most needed, and to bring together suggestions for incorporating safety instruction in the various secondary-school subjects. In many subject fields, the reader will find in the following pages numerous and helpful suggestions. In other fields, only meager hints are given. In still others, no help is offered.

PURPOSE

The purpose of this compilation is to present practical safety materials to teachers and administrators in such a form that it can be easily used.

It is hoped that energetic teachers of all subjects, especially those for which only meager or no suggestions are provided, will become interested in discovering and devising ways of including instruction in safety with the several secondary school subjects.

This manual should be used as a guide to practice, and as a handbook of information. It is hoped that the school administrator or teacher who wishes to organize group safety enterprises, such as a school safety committee, the junior safety patrol, or some other group or individual activity might find suggestions in this manual helpful. Teachers of the various subjects will find in succeeding sections suggestions applied to their respective fields.

CHAPTER I

THE NEED FOR SAFETY EDUCATION IN ACCIDENT PREVENTION

If any plan of teaching safety is to be effective, it must be based on facts. We should know when, where, and how the accident occurred; then we are in a position to give instructions in how it might be prevented.

According to statistics published by the National Safety Council, more than 20,000 of the United States' vast army of accident fatalities sacrificed in 1913 were children under 15 years of age. Another 10,580 came in the next age group 15-24.[1]

In 1936 the same age group gave up to accidental death 16,200 and 13,300 respectively, which shows a marked decrease in the public school age group. It was in 1922 that the National Child Safety Education movement began, which leads us to believe is the cause of this marked decrease.

Parents are very careful not to expose their children to contagious diseases, and most states have laws to guard against such evils, but a still greater hazard, accidental death, is given very little thought either by the majority of parents or by the public. A statistical bulletin of the Metropolitan Life Insurance Company for September, 1922 shows that in the City of New York in 1921, the accident mortality rate was two and one-half times as great as that from the combined fatalities of scarlet fever, diphtheria, measles and whooping cough. This is probably a fair sampling of the practices of all urban communities of the United States.

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1 Accident Facts, National Safety Council, 1937, p. 57

Are we justified, as a Nation, in sitting in judgment on war raids of foreign powers that take the lives of scores of women and children, in deploring Japanese massacres, when in our own country year after year the "American Massacre", a needless waste and bloody slaughter of thousands of innocent lives, goes on before our very eyes?

If the "American Massacre" is to be ended, every community, regardless of its size, must assume the responsibility of a careful study and analysis of its local situation as regards hazards, accidents, and to provide ways and means of preventing the waste of life and property which is going on in every city, county, and state. To begin this campaign with any degree of success, every organization in the community must be enlisted, for public opinion is one of the primary factors of safety. The interest and active help of Boards of Education and Parent-Teacher Associations, Lions, Rotarians, Kiwanis, Civitans, and other service clubs, Churches, Chambers of Commerce, Women's Clubs, American Legion, Automobile Associations, and every other known point of contact with the people of the community, must be made and kept alive if the community is to be a safe place in which to live.

In the development of a civic safety program the school is to play a very important part. All the organizations and individuals who are wrestling with the accident prevention problem have agreed on the conclusion that safety education is the cornerstone on which the safety program rests.[2] At the present time safety education is being demanded in all parts of the country.

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2 Harriet E. Beard, Safety First For School and Home, p. 6

In harmony with this demand a number of colleges and normal schools are offering courses in safety education along various lines and how to apply these principles in teaching. Day in and day out teachers are brought face to face with injury or death to some member of their school. "These fatal accidents are a challenge to the decency and sanity of the United States."[3]

A large majority of our teachers have had little or no special training in safety education, but are entering the work with commendable courage, and in many instances very successful.

According to Mr. W. H. Cameron, managing Director of the National Safety Council, in a lecture, "Realities of National Safety", the two most important problems are, (1) the lack of a public safety consciousness, and (2) a lack of professional safety leaders.

Therefore our education departments should begin to train the teachers thoroughly in the principles and practice of safety, if our program is to meet with any more than average results.

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3 Ibid., p. 7

CHAPTER II

A. THE NEED FOR SAFETY EDUCATION IN THE SCHOOL

The Educational Validation of Safety Education in the Schools

The School's Function. We define the school as a place where children are sent to substitute for their instructive impulses, habits, which are gradually developed in conformity with social institutions.[1] When life was simple, one could rely upon his natural impulses; but today when life is exceedingly complex, he needs something to supplement them. This is particularly true in meeting dangerous situations. At an earlier age man met these situations instinctively and could protect himself either by fleeing or fighting. Today neither is practical. There is need then for a more effective means of combating the dangers which are omnipresent in our advancing civilization.

Our advancing civilization has been contributed to by many factors. Transportation and communication may be mentioned as two social factors which have affected human habits and education. Telephones, telegraph, radio, books, magazines and the like have brought the world closer together. Never before have transportation and communication facilities been so extensively used. With each new age modern society has found new problems which, when solved will improve efficiency and in turn will probably create new safety problems.

Contrast a street or road scene of 1880 with one of modern times. Probably not over 15 horse-drawn vehicles passed a given spot in the

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1 Charles H. Judd, Psychology as a Basis for Educational Method, Elementary School Journal, 23: 1922-1923, p. 104

space of an hour. A traffic count for a period of two hours in 1922 revealed that 3361 vehicles of all kinds passed a given place. Of this number 2932 were automobiles, 334 were wagons, and 95 were street cars.[2] The reading of signs and being able to follow directions were not so important when communities were small and everyone knew everyone else personally. To go see a friend was a matter of walking or riding directly to his home. Today one depends upon subways, street cars, busses, carefully marked streets, and highways, signal lights, traffic warnings, or even a traffic officer's whistle to guide one across the street.

With this complexity of life has come complicated problems which are in need of solution. "The vague feeling that something must be done has as always, placed the burden on the school".[3] As a social institution the school has made an effort to meet the added responsibilities and to make the necessary adjustments. The public spirited individuals often make demands upon the school for a public betterment program. Much advertising is resorted to and proof of need is furnished by means of statistical data. There is no doubt such programs have aided greatly in arousing the public to a greater realization of its responsibilities, but such programs must be treated in their proper light.

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2 Harriet E. Beard, Safety First for Home and School, pp. 121-122

3 Ruth Streitz, Safety Education in the Elementary School, p. 6

B. CRITERIA FOR THE EVALUATION OF A PROGRAM OF SAFETY INSTRUCTION

It is the duty of the school to organize the entire educational situation in such a manner that the pupil has a favorable opportunity, through actual participation, to practice the qualities of desirable citizenship. To accomplish this end it will be necessary to utilize all the techniques of instruction.

Citizenship training is universally accepted by leading educators as a basic standard in our present philosophy of education. It follows, therefore, that student participation in the practice of accident prevention, and the acquisition of good safety habits (which is an important part of citizenship training) must form an integral part of our educational program. Each pupil must be made conscious of his personal responsibility for safety, not only for himself, but for others.

A program of safety instruction will make possible a more complete realization of other educational objectives; and with the realization of safety objectives, the contributions to human progress will be greater.

Fundamental Elements in a Safety Program that Meet the Requirements of our Modern Philosophy of Education.

1. Safety Instruction
    a. Safety Habits
    b. Safety Attitudes
    c. Safety Knowledge
2. Accident Prevention
3. Fire Prevention

4. Safety Council

5. Safety Patrols

6. Swimming

7. Safety in Athletics

8. Health as a Safety Measure

Instruction in the principles of safety should follow the same procedure used in other learning situations, namely the application of fundamental principles of educational psychology. Safety material must be psychologically and pedagogically sound, arranged and presented in a manner that will be interesting to the learner.

The purpose of safety instruction is to provide an environment which will stimulate the interest of the pupil, thus assisting in the formation of desirable safety habits, safety attitudes, and safety knowledge.

Desirable safety habits are formed in the same manner as habits in general and are based upon the principles of educational psychology. Gates states, "that after habits are once well established they operate in every respect like instincts".[4] After effective habits of safety have been formed and practiced a brief period they become instinctive actions. It follows, therefore, that habits are not initiated by drives or campaigns. Instruction should be positive, and extend over a period of time which will be long enough to insure repetition of stimuli to the extent that habit formation is assured.

This new phase of education should not be judged too critically, nor should one be skeptical of its value because there is no reason to believe that instruction of this nature cannot be just as definite and profitable

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4 Arthur I. Gates, Psychology for Educational Students of Education, p. 181

as education in other fields.

Definite attitudes are often formed early in life. "When a favorable attitude on the part of the pupil is secured toward various aspects of school life successful learning is assured as far as the pupil has the ability to learn".[5] This mental characteristic should form a basis for character training in good habits in safety education.

Safety Knowledge.

Facts learned in isolation have often failed to function in an emergency because they were in no way associated with the pupil's interest and activity. To acquire safety knowledge the experience must be of immediate interest. To be effective instruction must be definite, and presented in a manner which will be within the child's comprehension and experience.

Educators who are successful in student activities which are of the extra-curricular nature realize that the training of children in citizenship is the first important step in producing community citizens. Safety education is based upon citizenship and has its origin in the welfare of the community.

An attempt to show the results of safety instruction statistically at the present time would be impossible because this type of edmational training is comparatively new. However, in the study conducted by the White House Conference on Child Health and Protection in 1932, the committee received reports on 1,862 school systems in the United States,

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5 W. H. Pyle, The Psychology of Learning, p. 58

having a total school enrollment of 9,705,239 pupils in elementary and secondary schools. This study shows that safety is being taught in 86 per cent of the elementary schools and 56 per cent of the secondary schools reporting. This study does not reveal how much safety is being taught or to what extent; it reveals only that safety is being recognized by school administrators as a part of the school program. There is a possibility that some form of safety is being taught in a large percentage of the secondary schools than is indicated in the report, for teachers of science, civics, biology, chemistry, and other secondary school subjects can hardly fail to stress some phase of safety. Other facts that were shown by this report are as follows:[6]

In 15 per cent of the cities and towns there are separate courses of study in safety; in 79 per cent safety is taught in correlation with other subjects, particularly civics, English, art, handiwork, geography and health; in approximately 40 per cent of the schools they teach safety in connection with extra-curricular activities. Junior Safety Patrol are found in 25 per cent and Safety Councils in 9 per cent of the systems reporting.

Safety activities are also carried on by other clubs such as "Hy-Y", Boy Scouts, and Safety Clubs in 6 per cent of the cities reporting.

Supervision of these activities is provided by principals in 22 per cent of the systems, by health supervisors in 16 per cent, and by assistant superintendents in 9 per cent.

Safety teaching materials are furnished by the schools themselves in about 50 per cent of the schools reporting, and about 50 per cent also

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6 Safety Education in Schools, White House Conference Report III C, p. 11

report receipt of materials from automobile clubs, safety councils, industries, and chambers of commerce.

MEASURING THE RESULTS

In the seven year period from 1922-1928, accidental deaths of persons of all ages, increased nearly 25 per cent. In the same period, deaths of children under fifteen increased less than one-tenth of one per cent.

While automobile deaths among adults during this period increased over 106 per cent, the increase during the same period for children was only about 23 per cent.

The National Safety Council study of motor vehicle accidents during the last three years showed that, while fatalities of both adults and children of pre-school age had increased markedly, those of children of school age have decreased 10 per cent.

A study of some fifty of the larger cities of the United States covering child accident statistics of the past seven years indicates that in general those cities that have had the best results in accident reduction also have the most complete safety programs.[7] Occasionally cities may have marked variations in child accidents from year to year, but over a period of years there is a definite trend toward lower accident rates.

However, we must not assume that safety education is alone responsible for this decrease in child accidents. Safety is a joint undertaking and many agencies in the community are aiding in the work. Improved

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7 Safety Education in Schools, White House Conference Report III C, p. 54

traffic regulations under the direction of state motor vehicle departments, better fire prevention and fire protection activities, more provisions for playgrounds and camps, better supervision of swimming places, all of these factors and many others have been of value in preventing accidents to children, and establishing positive results of safety education.

Various tests have been devised for measuring safety knowledge and attitudes of children. In 1929 the National Safety Tests were published. These tests are intended for upper grades and the high school, and measure safety information and attitudes with fair reliability (r= .74). The supervisor of safety education in St. Louis is now working out safety picture tests for younger children for use in measuring children's knowledge of safe and unsafe activities. At the present time there is a need for testing devices for measuring safety habits, for since education in safety is of little value unless it results in improved safety habits, also it will be useful in determining effects of various types of instruction in forming such habits.

CHAPTER III

ORGANIZING SAFETY INSTRUCTION

Campaigns of short duration have their place in the promotion of community accident prevention. However, there is no reason why high schools should limit such campaigns to a brief period of duration. Pupils are in school approximately 15 per cent of their time during the school year. Safety education week should be definitely related to a more permanent program of accident prevention so that the interest which has been aroused may not be lost through lack of continued application.

Instruction must be based on the principle that children, "learn by doing". Organized activity in the field of safety instruction is more important in the realization of ultimate aims than any other single factor. Most of our modern improvements advance because of organized activity, and cooperation among groups with the same ideals.

The movement for national safety represents the efforts of many organized groups toward the goal of conservation of life and the material resources upon which life itself depends.

The urge or desire to congregate and to belong to certain groups has been evident from the stone age to the present day. Human beings are conscious of personal safety, security and protection when affiliated with the group. Even small children form clubs, and the desire "to belong", "to be a member of" carries through life. Gregarious tendencies when properly directed become highly important in education. School officials realize its importance and today club activities are a well organized part of the progressive school program. The club becomes a medium for education and its members influence the attitude and conduct

of those with whom they associate.

Organization of safety clubs and safety societies within the school offers an excellent opportunity for children to learn the importance of caution and to practice the principles of individual and group protection against avoidable accidents. Safety material must be made available to every pupil, and the classroom instruction pertaining to the explanation of graphs and statistical data, should be discussed thoroughly. If pupils are to be inspired to take their place in the safety movement, we must invoke the force and interest of action within the group.

Safety organizations are eager to enlist the aid of boys and girls to assist in their program of accident prevention.[1] They often provide safety patrol insignia, council buttons, literature, speakers, films, and other information regarding accidents. Parents are vitally interested in the safety of their children. They are anxious to cooperate with local club and school officials in any possible manner to improve conditions for the welfare of children.

Organizing protective agencies within the school is an important duty and should be supervised by the principal. Not only the principal but the entire faculty should have a sympathetic attitude toward the purpose of the work.

Any program of safety instruction should be presented to the faculty before it is discussed with the pupils. In the past, many safety clubs have failed to fulfill their purpose because of faculty misunderstanding, lack of information or a definite knowledge of how the work is to be carried on. If pupils are expected to assume a part of the work they

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1 The Industrial Commission of Ohio, Division of Safety and Hygiene, p. 12

must be made to feel a certain responsibility for accidents and have a desire to prevent them.

Selecting a faculty representative to act as sponsor to the pupil group is an important detail and should be considered from every angle before the appointment is made. The sponsor must be interested in the safety movement. A friendly attitude and a desire to cooperate with the administration and pupil group is the first requisite. Interest in civic affairs will be an asset, for the sponsor will not only serve the pupil group but will act as intermediary between the school and the safety organizations of the city. "Safety work of the school should be understood by the adults of the community instead of being passive toward the efforts of the school."[2]

During the period of organization and formulation of duties and laws, the sponsor must be careful not to assume too much authority. Tact will be needed in initiating a plan for the guidance and direction of activity because the children themselves should feel that it is their work to plan and execute. If the sponsor acts as the officer in charge of the meeting, pupils will soon lose interest in the work, the result being wasted effort and failure of the activity. Children are interested in adventure and exploration. They will find satisfaction in overcoming the simple obstacles which interfere with the regular process of life.

> "Safety education is a plan through which the philosophy of safety may be stimulated and promoted. It shows the way to the best of practices: those that have been tried through years of experiences and those atune with the best of educational trends.[3]

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2 Harriet E. Beard, Safety First for School and Home, p. 94

3 Harold D. Meyer, (Foreword) Safety Education

To function effectively a safety council must regulate behavior and assist in forming desirable habits. A definite plan of procedure must be carefully worked out before each meeting. Occasionally, perhaps, it will be necessary to deviate from the program of the day, but the discussion should not be diverted to other fields of activity. A safety council is part of the governmental machinery of the school and should function within this field.

In order to stimulate interest in the safety council it is advisable to arrange an assembly program which will include a safety playlet and demonstration of life saving. This may include artificial respiration, suffocation, electric shock, and bandaging. Following this program the principal should explain the sound and logical reason for the advancement of safety instruction. Unsafe practices on the part of pupils or hazardous conditions in the vicinity may be cited as examples. Following the assembly program a few minutes discussion in the home room will give pupils an opportunity to express their opinions regarding this new and interesting organization.

The plan of organization will vary according to the existing conditions. A plan which would be ideal for one school may not be applicable to another without revision. Every pupil should have an opportunity to belong to the council. Regardless of the type of organization, pupils should be given the opportunity to participate or to become a member of the patrol squad. The duties are varied and extensive, thus permitting a large number to be active at the same time. Patrol activities which are most frequently listed include (1) supervise traffic within buildings, (2) supervise activities on playground, (3) report accidents or hazards, (4) direct traffic, (5) supervise lunch room. Council representatives

are elected by the pupils of his room. Candidates are required to meet various standards before being eligible for nomination. The writer has formulated standards of classification which in general will work in any school. They are as follows:

1. Average scholastic grade in at least three subjects.
2. Average attitude grade in all subjects.
3. Member of not more than one other major activity.
4. Observe safety code.
5. Learn safety pledge. (See Appendix "G" and "K" for forms for Constitution of Safety Organizations)

CHAPTER IV

A PROPOSED CURRICULUM FOR SAFETY EDUCATION

A. AGRICULTURE

Safety as a part of agricultural instruction in the secondary school. Agriculture, at least in some form, is taught in the elementary school and by the time the pupils reach the secondary schools they should have, at least developed many desirable safety habits. For that reason the teacher in the secondary school should not have to place emphasis upon the primary principles of safety in agriculture. Whatever suggestions are made in this manuscript, will be made purely to stimulate the thinking of teachers, with the possibility that each teacher will take every possible advantage to build up safety concepts. It is not assumed that the teacher will not be alert to the dangers of the improper use of tools and equipment, or that he will not make and enforce safety rules in the school garden, tool house, and laboratory. In fact, these places offer greater opportunities for effective teaching of safety than the classroom, for it is here the pupils are taught the operations of agriculture. Many textbooks discuss the improvement of plants and animals, their propagation, the characteristics of soil and of farm crops, and diseases of plants and animals, etc., all of which may be considered without any attention being given to the farming activities carried on in connection with them. With each activity comes some hazard and an opportunity to teach a safety lesson, without getting away from the theme of the lesson. Therefore the suggestions hereinafter offered will tend toward activities and as a result may have a wholesome influence upon methods of teaching the subject.

The purpose, however, is not to substitute safety instruction for agriculture, but rather to direct attention to the many opportunities in this subject to teach safety in situations that are close to life. The fact that safety is to be taught incidentally or added to the regular classroom procedure, makes it more important that the teacher be alert to opportunities to show the pupils the dangers in agricultural practices.

Since the safety program in agriculture is so dependent upon activities, it is well to organize and plan that program on an activity basis. The teacher of agriculture will find it necessary to introduce safety instructions into the course so as not to violate the accepted procedure. Therefore the suggestions here will be to present ideas of safety instruction, and not to be followed in teaching agriculture. In terms of subject matter of agriculture, the opportunities for safety instruction may be grouped into those activities in connection with field operations, gardening, care of orchards, farmyard activities, and activities in farm shops.

1. Field operations. Most of the dangers incurred in connection with the field operation involves the use of farm machinery; there are the implements for preparing the soil for planting, others for planting, others for cultivating, and still others for harvesting. Among the dangerous ones may be listed the tractor, discs, stalk cutters, silage cutters, harrows, gang plows, binders, headers, combines, threshing-machines, manure spreaders, and ditchers. The use of gasoline engines, tractors, automobiles, and the like calls for caution and instruction in the care and use of highly combustible fuels. There are many

other dangers, such as hazards of dirt, dust and flying particles. Such dangers as heat and sun stroke also should be mentioned.

2. Gardening. In gardening, the most common dangers are from working too close to some one else, the improper use of the sharp edged tools such as the hoe, rakes, spading forks, sickles, and the like. The care of such implements also present some dangers.

3. Care of orchards. In caring for orchards there are some new dangers which are not common to ordinary field crop farming. There are about four major types of dangers in connection with care of orchards. First, many of the same kind of implements are used in the orchards which are used in field crop care; second, pruning knives and other sharp implements are used in caring for the trees; third, harvesting the fruit involves dangers such as falling from improperly placed, or broken ladders; fourth, sprays and gases used in protecting the trees and fruit from insect pests are often very poisonous.

4. Farmyard activities. In the farmyard, most of the dangers come in the handling of horses, cattle, hogs, and other livestock. Some instruction can be given with reference to the proper and safe handling of livestock (see animals on page 48), also the proper methods of harnessing, currying, driving, and the like. Many precautions must be taken in connection with fire hazards, such as the proper place and use of gasoline and herosene lights, the avoidance of smoking while working inside the barn, the proper storage of crops susceptible to spontaneous combustion,

and proper installation of a standard lightening rod. Proper installation of sufficient fire-fighting appliances will also minimize fire dangers.

5. Activities in farm shops. With increased use of machinery on farms, the farm shop is playing a more and more important part in agriculture. Therefore there is a great need for teaching precautions in connection with sharpening tools, the use of the forge and anvil, the hammer, saw, and the like. Here as in the use of other farm machinery, there is a need for emphasizing precautions against the dangers of belts, fly wheels, and other moving parts of machinery. (See Teaching Safety Through Vocational Subjects, pages 88-95)

Much time is lost and much unnecessary suffering is the result of improper care and neglect of small wounds. When discussing the care of wire cuts and other wounds on animals, there is opportunity to emphasize the need of similar care being given human beings. (See First Aid, page xi in Appendix)

SUGGESTED STUDENT ACTIVITIES IN CONNECTION WITH AGRICULTURE

The alert teacher will find many opportunities for incidental safety instruction in connection with regular class routine. However, there will be some occasions when the teacher will wish to make use of such activities. The few here given are merely suggestive and the energetic instructor will find many other opportunities.

1. Have pupils make charts, graphs and other means of comparison between agriculture and other occupational deaths. (source — Accident Facts 1937, pages 20-29)

2. Make a list of hazards that are common to a farmer and a person in some other occupation.
3. Make a list of hazards that are common to a farmer and not common to some other occupation.
4. List a number, perhaps twenty, of the more important dangers to which a farmer is exposed in the ordinary course of his work, and describe precautions in each case.
5. Report on the farmer as an insurance risk. How does he rate as a risk compared with other occupations?
6. Have class make a scrap-book of accounts of farm accidents. Describe precautions that would have prevented the accidents.
7. Have class report on animal diseases that might be transmitted to man, and precautions suggested in each case.
8. Students may draw up a model set of safety rules for the farm such as they would give to a new farm hand if they were farmers and were employing a new man from the city. The list should be short enough to be practiced, and should include general safety principles applicable to the farm.

VIGILANCE IS THE PRICE OF SAFETY[1]

Never fill the gas tank while the motor is running.
Never kindle a fire with kerosene or gasoline.
Never take risks in burning trash, stacks, or grass.
Never smoke in or near barns or stacks.
Never relax vigilance with teams, especially colts.
Never store gasoline in farm buildings or the house.

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1 A Farm Accident Primer, Kansas State Safety Council, pp. 25-27

Never start a machine until it is in working order.

Never allow a wound to go without disinfecting it.

Never allow children to have matches.

Never start the automobile in the garage with the door closed.

Never use gasoline for cleaning in the house.

Never put pins or tacks in the mouth.

Never allow a loaded gun in the house or barn.

Never fill the tank of an oil or gas stove in the house.

Never try to drive a crooked nail.

Never keep dangerous animals unconstrained.

Never allow matches in farm buildings.

Never strike a loose stick with an axe.

Never take chances in felling a tree.

Never try to stop bleeding with a spider web.

Never try to throw a belt with the foot while the engine is running.

Never use a ladder unless you know it is safe.

Never lean a pitchfork against a stack while someone is above.

Never try to ride a stack of bundles or hay that has started to slip.

Never climb through a barbed wire fence with a loaded gun.

Never touch a wire fence during a thunderstorm.

Never work in front of a sicklebar while the team is hitched on.

Never back a machine or vehicle until certain no one is behind.

Never use combustibles for cleaning the hair.

Never leave a chair where it may be stumbled over in the dark.

Never try to stand on a rocking chair to reach high places.

Never hook an electric cord over a nail.

Never carry matches loose in the pockets.

Never allow children to ride the fenders of tractors.

Never allow a gate to blow shut on a team.

Never allow dead trees to stand in the yard, farmlot, or in the fields.

Never let an old nail go unpulled or unbent.

Never try to use a jacknife for a can opener.

Never cut toward yourself.

Never let abandon wells remain unfenced.

BETTER BE CAREFUL ALWAYS THAN TO RUN RISKS OF INJURY

Always use care on icy steps, in bathtubs, or on rugs.

Always paint the edge of the top cellar step white.

Always label all medicine bottles.

Always have bottles containing poison distinctly labeled, with rubber bands or pins in the corks.

Always turn skillet handle away from the front of the stove, so children can not reach it.

Always keep inside doors open or shut, never halfway.

Always keep garbage can covered from dogs and flies.

Always be sure a match is extinguished before it is thrown away.

Always provide ample ventilation when using gasoline or kerosene stoves.

Always keep kitchen knives in a rack, never in a drawer.

Always put broken glass in a safe place.

Always keep wet hands away from electrical appliances.

Always unload gun before bringing it into the house.

Always keep children out of yards where animals are loose.

Always mop up spilled grease on the floor immediately.

Always speak kindly to a horse or mule before going behind him.

Always avoid a lone tree during a thunderstorm.

Always keep yard free from trash or rubbish that might cause a fall or injury.

Always remember that the danger from a bull or a boar increases with the age of the animal.

Always drive pitchfork tines and rake teeth into the ground when left temporarily.

Always remember that most accidents do not happen -- they are committed, and therefore can be prevented.

B. ENGLISH

Since English coordinates all other departments, and is their common vehicle of expression, it offers many opportunities for the inclusion of safety instruction.

It is assumed that in the elementary schools, safety work has pointed the way for younger boys and girls. That simple rules of safety have been stressed: safety at home, safety in public places, safety at work, and safety at play have been taught and made understandable on the elementary level. If a good job has been done, many sound safety habits will have been formed. In the junior high school, the ideal of service can be introduced and stressed. In the senior high school, a purposeful

understanding should take the place of, or supplement, the idealism of the junior high school group. This understanding should come about as a natural growth prompted by actual investigation, interpretation, and practice of necessary regulations.

All departments and activities lend themselves readily to furnishing interesting and worth while content for both oral and written work in English classes.

The activities for safety instruction in English might be divided into the fields of literature, composition, plays, verse, journalism, oral English, and dramatization.

Literature. Definite illustrations of the splendid safety work that is constantly being done and of the great need for a deep understanding of the fundamental principles underlying this work is furnished in our literature.

Young people must be made to feel a responsibility in civic and social welfare. They must be able to meet situations and overcome obstacles. Stories of statesmen, engineers, architects, physicians, surgeons, ministers, and educators very often punish incentives to better efforts and higher goals toward which a high school pupil may strive. A study of the lives of these great men who have contributed to the progress of the world by their unusual careful study, hard work, their devotion to a definite task, and their true loyalty to high ideals are some illustrations of the opportunities present in literature for teaching safety ideals.

Composition. Class activities in all the various departments and the general student-body activities present concrete subject matter that the English teacher can well utilize. Such subjects as: "Are our

school busses safe?", "A Safety Code for Our School" (see appendix). "Codes of Behavior at Athletic Contests" (see appendix), "Safety Organizations", (see appendix), and many others can be vitalized through student compositions.

Plays. Many safety plays worthy of production have been written and produced by high school pupils. The advantage of this type of activity is three-fold. First, before a play is written a theme must be selected; second, a story developed; third, characters chosen. This requires group study and cooperation.

Sometimes the school, community, or perhaps an individual furnishes evidence of the need of a careful analysis of the safety problem, and under the leadership of an inspirational teacher, a group of high school students will develop ideas very rapidly for plays.

Verse. Much interesting and attractive verse has been written to impress the pupils with the importance of safety. Creative teachers can do much by offering encouragement, sympathy, and understanding to beginning writers of verse. Much interest might be added if some of the musicians in the class would write music for some of the shorter verses.

Journalism. The school newspaper is an excellent medium for the dissimination of information on the problem of safety. A safety column for local safety articles of general interest, facts for comparison, safety slogans, and the like. Editorials on safety problems of general interest is another good means of free student expression and participation on a live issue. Teachers should utilize all such means of teaching the students to think safety.

Oral English. Through the activities for oral English many other opportunities are available for the development of a better understanding

of safety. Many subjects could be worked out by the students for oral discussion in the classroom, home room, assembly, or even before civic clubs, and the like. Some suggested subjects: "Safety, A Community Problem", "What Is Public Safety", "Industrial Safety", "How We Can Make Our Community Safer". Many subjects for debates can be stated around the above mentioned subjects, or better yet, have the students to select their own safety topic or problem to be discussed. (see appendix for other suggestions and examples)

Dramatization. Much of the work developed in the English classes lends itself readily to dramatization. Usually the plays written by the students themselves are more interesting to that particular group than ordinary materials given them to memorize. For that reason, it offers a golden opportunity to capitalize on group interest to teach a safety lesson.

Situations in your school or local community involving danger and the need of caution and thoughtfulness lend themselves to pantomime, which is always an effective way of telling a story.

C. HOUSEHOLD ARTS

In 1936 home accidents took more lives than any one of the four principal classes into which accidental deaths are commonly divided.[2] Laws have been passed for regulating and inspecting industrial establishments, automobile clubs and similar organizations have made surveys of

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2 Accident Facts, National Safety Council, 1937, p. 6

public safety conditions, and have made recommendations to the public whereas safety in the home has been taken for granted or left to the unorganized efforts of a few interested groups. Among those agencies that have helped in promoting safety in the home are schools of home economics and their outgoing teachers, periodicals that deal primarily with the art of home-making, and progressive manufacturers who have housed motors, glazed light bulbs, and performed many other similar services. Yet with all the emphasis on safe and sound home-making and safer home appliances, the home condition of the average American family remains a frequent source of mishaps, both minor and fatal.

Due to the fact that science has invaded the home with a host of machines, that it has become necessary for expert instructions in their use if they are to be a help rather than a hindrance.

Children born into a scientific world can and should learn how to respect the potentialities of the medicine cabinet, the lawn mower, the washing machine, the match, the electric current and the many other contrivances that go to make up the modern equipment of a home. Children can be taught to appreciate that an apparently harmless match may result in a beautiful, warm, helpful fire, or in a charred home; that gas may result in a well-cooked dinner or death by asphyxiation; that the scratch of a rusty nail may result in a wound that is easily healed or in lock-jaw; that the medicine designed to help you recover from illness may result in your death if improperly used. Each case depends upon whether the family is safety-minded or not.

The following suggestions are typical of the many ways in which teachers in household arts can promote safety in the home. These suggestions will probably be of more value if varied with the particular

group being taught. The following suggestions are only samples. By no means is the list exhaustive or all-inclusive.

WHERE HOME ACCIDENTS HAPPEN

Medical and hospital bills for the care of home accidents in 1926 were almost $2,000,000 a day; and every day scores of new graves were filled by such accidents.

The home need not be a large contributor to this horrible annual toll. Observance of a few preventive regulations and a diligent exercise of intelligent watchfulness can reduce the hazards greatly.

Falls lead as the cause of accidental deaths in the home. The chief place of most falls is in the bedroom. Thirty-nine per cent of all home falls occurred in the bedroom. The two most frequent reasons for falls in the bedroom are: wandering while half asleep, and moving in a dark room and falling over something.

The living room is the second most dangerous room in the home -- accounting for twenty-one per cent of all fatal falls.

In addition to wandering in a darkened room because of badly arranged light controls, there exists as a major source of danger, the loose rug on the slippery floor.

The third most dangerous place in the home is the stairway. Frequently stairways are poorly lighted, inadequately railed, too steep, loose objects left on them, and cut away steps at turns account for the greatest hazards. No doubt it is due to the fact that stairways are so obviously unsafe that people exercise extra care and keep the fatal falls

on them down to sixteen per cent of the total.

Many kitchen floors are covered with linoleum. Even a little water can make linoleum slippery, to say nothing of grease and foods.

Among the minor sources of falls are defective chairs and step ladders; buckets, mops, and brooms left where one can trip over them; and wet leaves, snow, and ice on porches, steps, and walks. Toys left out after play is a common hazard for dangerous falls.

Burns are the second most serious menace to life in the home. Logically enough, more than half the fatal burns are in the kitchen. some of the outstanding sources of burns are boiling water in the pipes and on the stove, unguarded open flames, the use of kerosene or gasoline to start or speed up fires, the use of inflamable cleaning fluids, the use of defective electric appliances, and the failure to use safety matches.

Almost one-fifth of the fatal home burns are suffered in the living room. Those are due mostly to mishandled cigarettes, the overturning of oil lamps, defective electric wiring, and unscreened open fires.

In bedrooms, where about one-eighth of fatal burns have their origin, the chief causes are overturned oil lamps, carelessness with cigarettes, and defective wiring. This last item generally results from faulty amateur installation.

The kitchen, bedroom, and living room are the source of nearly nine-tenths of all fatal burns in the home.

Besides falls and burns, other sources of fatalities in the home are asphyxiation, cuts, poisoning and electrical shocks.[3]

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3 Accident Facts 1937, pp. 6, 54-57

With these facts in mind the alert instructor will have ample opportunity to build up safety lessons and activities.

SUGGESTED STUDENT ACTIVITIES FOR TEACHING SAFETY IN HOUSEHOLD ARTS

1. Safety survey. Have the students make a safety survey of their own home. (see appendix for check lists)
2. List, when at home, the hazards that they observe in and about their own home.
3. Discuss in class the remedies for the unsafe practices found in their own homes.
4. Plan and put on an assembly program for the school which will demonstrate accident hazards in and about the home, and which will show the precautions that are necessary in order to avoid these hazards.
5. Make a list of playthings (appropriate for outdoor) for different age-groups. Mention good and bad features of each.
6. Learn how a sand pile may be kept clean and wholesome.
7. Report on the ventilation of your home and give suggestions as to how it might be improved. When is good ventilation necessary? Why is poor ventilation dangerous?
8. List as many reasons as you can why doors such as closets, cupboard, and the like should not be left open.
9. For activities in connection with electricity and electrical appliances (see Page 41)
10. Study the dangers of an overheated furnace and how to eliminate them.

11. Draw a diagram of the arrangement of the furniture in each room of your home. Discuss this arrangement from the standpoint of convenience and safety. How can it be arranged to promote a safer home?

12. List the possible dangers of the following:

    Steam.

    Hot fats and oils.

    Foods and poisons.

    Garbage and waste.

    Kitchen ware.

    Kitchen machinery.

    Heaters and stoves.

    Falls.

    Medicine cabinet.

13. Plan a light that is convenient to the bedside.

14. For other home-safety activities see page 43.

D. SCIENCE

Science, as perhaps no other subject in the secondary school curriculum, presents many means for driving home certain truths about safety because of its method of dealing with natural facts that are concerned with the students' home and school environment, the concrete things in which the students are naturally interested. The conduct of laboratory work, as well as the study of such topics as heat, electricity, machines, bacteria, and chemicals, challenge the teacher to his best

efforts in making real the necessity for safety everywhere.

In so far as science instruction is concerned, a number of classifications of safety projects are possible. One method would be to make use of the set or established divisions of science, and the like. Another would be to base your projects on the activities of life. The following suggestions will be based on the latter classification.

Five classifications will be suggested here: home environment, safety in the care of the body, safety in transportation, safety in leisure-time activities, and safety in school activities.

In the following suggestions, no attempt will be made to do more than to list a number of possibilities and to indicate a few pupil activities for safety instruction. Teachers are expected to make use of the content of their courses to teach important safety concepts and their application. The interested teacher has no difficulty in finding adequate material and practical application, because the realm of science abounds in opportunities for careful thinking and acting.

SAFETY IN THE HOME ENVIRONMENT

Fuels used in the production of light and heat. The dangers of the various burning fluids and gases, and their use should be stressed here. Any fluid that burns is inflammable, and thus dangerous.

1. Burning fluids. Petroleum products are good examples of such fluids. The students should have brought to their minds the household hazards connected with their use. They should know, for example, that:

(1) Kerosene vapor burns only when it is heated to its burning point. Therefore, it is important to remember that the danger of an explosion from the use of kerosene arises only when the oil is heated above its flashing point. If the oil is poured upon shavings or wood for the purpose of starting a fire, the danger of an explosion is lessened. If, however, kerosene is poured into the stove containing live coals, and explosion is inevitable. Kerosene or gasoline should not be a part of the kitchen equipment unless intelligently used.

(2) Gasoline can often be used with comparative safety if certain precautions are observed. The main can of gasoline should be kept in a well-ventilated out-building, in a metal container that does not leak. Never take a flame of any kind near the can, nor near any quantity of gasoline. Never attempt to fill the tank of a lamp or stove while they are lighted. Do not fill the tank full as gasoline expands when heated and it may then explode. In case gasoline has been spilled or the receptacle has leaked, open the doors and windows of the room to allow a complete change of air before you bring an open flame into the room. All closets where the air might have become saturated with gasoline vapor should be thoroughly ventilated.

Safety "nevers" for gasoline

a. Never try to burn gasoline in a kerosene lamp.

b. Never fill an automobile tank while the motor is

running.

c. Never allow a gasoline engine to run in an inclosed room or garage.

d. Never use gasoline to kindle a fire.

e. Never use gasoline as a cleaning agency.

f. Never leave a gasoline container open.

g. Never leave gasoline where children may have access to it.

(3) Cleaning fluids which contain gasoline or benzine are dangerous. If used at all they should be kept in tightly closed metal containers and used only outdoors. The gas formed by the evaporation of the liquid will often travel many yards and ignite when coming in contact with a flame or spark. Cleaning fluids with the explosive element extracted do not offer as great a hazard.

2. Gases. Many gases and vapors are, like illuminating gas, more or less poisonous. Different gases effect different physical faculties. For instance coal gas causes coughing, the tear gas (harmless) causes blinding tears. Others irritated the throat, causing choking, and still the gases that produces death. In the study of gases, there are certain hazards that should be emphasized.

(1) Manufactured or natural gas contains carbon monoxide, and it should have other gases in it which give an odor by which we may know when it is escaping. Our continued use of gas renders us careless. There are many dangers of gas in a home, for example, gas escaping from an open jet,

a rubber hose pulled off, a leak in a line, or even part of the burners of a lighted stove being unlighted. Any of these practices might lead to asphyxiate persons in a poorly ventilated room, or cause an explosion. If a person comes into a room and smells gas there are certain safety procedures to follow.

(a) Never light a match.

(b) Throw open the doors and windows.

(c) Turn off the escaping gas if possible. If it is leaking from a pipe, use soap to locate the leak.

(d) Report all leaks to the gas company.

(e) Turn on electric light or use flashlight.

3. Coal and wood. Stoves burning coal or wood will generate carbon monoxide if they have been filled and all drafts closed. Any kind of a stove should be regulated when in use so it does not get red hot. It should have good clearance from walls or floor, which should be protected with sheets of zinc or asbestos.

4. Electricity. One of the greatest aids to human progress is electricity. There are also many dangers connected with its use which can be eliminated through knowledge of the subject. Electricity is a force that should be studied and used intelligently, not a danger to be feared.

(1) Electricity presents dangers of two types. First is the danger from fires caused by the heating effect of the current in the wire, or from the flash. Second is the danger from shock.

(2) The electrical current may escape from the wire through

uninsulated places and even run down the poles, guy wires, etc. Loose or uninsulated wires should never be touched by unexperienced persons. If such wires are discovered, guard the place and send for someone to notify the service company or the police that such a wire has been found.

5. Hints for the laboratory. The school laboratory may be a source of frequent accidents of greater or lesser degree. A history of destroyed eyesight, burns and other accidental injuries show that many of these were caused by faulty laboratory practices.

   (1) All apparatus should be regularly inspected by a competent person.

   (2) A hood should be built for poisonous gases. Especially for gases such as bromide, hydrogen sulphide, chlorine, and nitrogen peroxide.

   (3) The student should be taught how to handle apparatus and should be given rules and warnings at the beginning of the course.

   (4) The teacher should go through all experiments, or manipulations of experiments first. For example:

      (a) How to mix acids and water.

      (b) The proper way to light gas.

      (c) Care and use of the bunsen burner.

      (d) How to hold a test tube.

      (e) How to light a hydrogen generator

      (f) How to bend glass tubing, where to press, etc.

      (g) How to smell of an unknown fume.

   (5) The teacher should not allow students to do dangerous

experiments. They, if done at all should be done as a demonstration by the teacher.

(6) The students should be "broken in" slowly to the use of dangerous materials and permitted to proceed with caution. In this respect, however, the teacher should emphasize the necessity for intelligence, and not fear.

PUPIL ACTIVITIES IN CONNECTION WITH SAFETY IN THE HOME ENVIRONMENT

1. Make as study of the electrical conveniences in the home and the correct method to use them, such as:
   - electric lights
   - electric refrigerators
   - electric sewing machines
   - electric stoves
   - other electric appliances
2. Test temperature during oxidation of oily rags placed where little conduction of heat may take place.
3. Learn the appearance of a properly burning gas flame and how to adjust gas burners.
4. Test the products of combustion from gas stoves and gasoline engines.
5. Study safety devices on common household machines.
6. Make a study of state laws and city ordinances and list provisions that are made for safety in the construction of homes and other buildings.
7. Make a list of suggestions for coping with termites.

8. To learn to avoid putting one's feet out where others may trip.
9. To learn to carry a chair with legs down.
10. To develop the habit of watching where one is going.
11. To develop the habit of picking up material left on the floor.
12. To know that it is uncleanly and dangerous to throw fruit skins or trash on the sidewalk or in the street.
13. Make a floor plan of your home. Mark the danger spots for falls.
14. Plan and carry out a clean-up drive for your back yard and out buildings. Make notes of what you will look for.
15. Make cases for knives, scissors, etc.
16. Help make your floors safe for walking by making rugs non-skid.
17. Construct a simple fire extinguisher. Learn at least three methods of extinguishing fire.
18. Draw a diagrom of a good means of ventilating your home.

SAFETY IN THE CARE OF THE BODY

One of the chief functions of science should be to teach the proper selection of food. The bad effects of tea, coffee, tobacco, narcotics, and alcohol have been accepted as proper subjects for study. State legislatures have frequently passed laws in regard to the teaching of these matters. Consideration may well be given to the safe use of fruits, vegetables, shell-fish, and other good stuffs.

1. MILK. Since milk is the most important food for children, great care should be exercised to make sure that the best is obtained for the family use.

2. FRUIT.

   (1) Green fruits are to be avoided, unless cooked, because of excessive starch content.

   (2) Over-ripe and decayed fruits contain bacteria or other organisms that may do harm to the consumer and should be avoided also.

3. MEAT. Botulism is often caused by eating tainted meat. Meats should be carefully selected, cared for, and prepared.

4. FUNGI. Most all fungi are inedible, although a few species of mushrooms are considered a delicacy. Wild fungi should not be gathered and prepared for food except by someone experienced with such growth.

5. MUSSELS. At certain times of the year, mussels as food, are dangerous. A number of deaths are reported each year from mussel-poisoning.

6. OYSTERS. Oysters grown in filthy places are no better than their home. Oysters have been found to carry typhoid germs.

7. WATER. Water supplies have been responsible for a large number of serious epidemics of typhoid fever. Many cities are spending millions of dollars in order to secure an adequate supply of pure water. Treat all drinking water of unknown sources.

8. SEWAGE AND GARBAGE. The health of the community as a whole may be thought of in this connection. The proper disposed of sewage and garbage, keeping the streets and alleys clean are important factors toward maintaining community health.

9. LIGHTING. Eyesight, one of our most precious gifts, is often abused, usually in ways that may be easily avoided. The study

of proper lighting is a subject well worth mastering.

10. MEDICINE CHESTS. Most family medicine chests contain some deadly poisons. Too many people wander into the bathroom in the dark, grope in the cabinet, and get the wrong bottle. It is a good idea to put several stout rubber bands around all bottles containing poison, so that, if you pick them up in the dark, your sense of touch will reveal the character of the contents. Campaigns for proper labeling and storing of such poisons will do much toward preventing serious accidents.

11. FIRE-ARMS. Fire-arms are made to kill, and under no circumstances should any weapon be left loaded in the home. A very thorough campaign in the use, care, and handling of fire-arms will aid in eliminating accidents of this type.

12. FALLS. Falls account for almost one-half the home accident fatalities. Listed below is a suggested list of possible causes of falls which should be safeguarded.

    Falls from:

    (1) ladders
    (2) haymows
    (3) windmills
    (4) roofs
    (5) trees
    (6) improvised supports for reaching high places
    (7) slipping on loose rugs
    (8) slipping in soapy bathtubs and floors
    (9) slipping on slick floors
    (10) stepping on toys left on floors and stairways

(11) stumbling on carelessly dropped clothing and shoes

(12) other objects out of place on the floor.

13. BURNS. Another common hazard to persons in the home is a burn. There are many sources of burns, and the suggestion here is to safeguard any possible source of a burn, because burns, even though slight are very painful and dangerous. A few sources of burns common in the home are mentioned.

(1) Overturned oil lamps.

(2) Defective wiring.

(3) Smoking in bed.

(4) Leaving hot liquids in reach of children.

(5) Giving children access to matches.

(6) Improper use of fireworks.

14. OTHER HAZARDS. There are many other hazards which are responsible for many injuries to persons in the home which also must be handled with care and never toyed with. A short list, from which many lessons on safety can be made, follows.

(1) Power mixers used in kitchens.

(2) Sewing machines.

(3) Washing machine.

(4) Mechanical can openers.

(5) Food choppers.

15. RODENTS. Rats, mice, rabbits, and other vermin are common spreaders of filth and contagion. Consult your county agent regarding the use of red squill, a rat poison which will not kill other animals.

16. ANIMALS. Improper handling of animals causes many accidents. A bull always is dangerous. He may safety be led by using a staff with a snap engaging the nose ring, instead of a loose rope which permits the animal to approach its handler. When entering the pen of a sow with a new litter of pigs, keep a portable gate in front of you. Always speak to horses before entering their stalls. Horses are most dangerous when excited. Speak quietly and kindly to them.

17. PETS. Pets and animals common to the h me should be treated with proper restraint. The bite of a mad dog often results in hydrophobia and death.

18. WEIGHTS. The lifting of heavy articles is, of course, facilitated by the use of levers, pulleys, and the like, and health and strength are at the same time conserved.

19. IMMUNIZATION. The education of the great masses of people in the use of methods of immunization and proper care of the body through adequate consideration of food requirements has resulted in a great decrease in preventable disease and death.

20. PESTS. Insects, poisonous snakes, and the like form another hazard in and around the home. Everyone may well learn to recognize these dangers and avoid them.

20. SHRUBS. Poison ivy and other poisonous shrubs, roots, and berries should be learned and avoided.

PUPIL ACTIVITIES IN CONNECTION WITH SAFETY IN THE CARE OF THE BODY

1. Learn the composition of green, ripe, and over-ripe fruits, and their effect on the body.
2. Learn about certain bacteria found in decayed food and their effect on the body.
3. Learn how to distinguish between edible and poisonous varieties of fungi.
4. Learn what mussels may safety be eaten, and at what times of the year.
5. Learn how oysters are grown, harvested, and cared for.
6. Learn what provisions are made by state and city to insure a clean milk supply.
7. Study some of the diets in vogue and learn their deficiencies.
8. Learn about the local water supply, and determine provisions that are made for keeping it clean and pure.
9. Learn how epidemics have been caused by an impure water supply.
10. Learn the method employed in the local community of disposing of sewage and garbage.
11. Learn how the body may be immunized against smallpox, diphtheria, typhoid fever, etc.
12. Learn the story of how Pasteur found a cure for hydrophobia.
13. Learn what diseases rats and other rodents may carry.
14. Find out what disease germs may be carried by mosquitoes, flies, and other insects.
15. List poisonous shrubs in your locality. Name their special characteristics.
16. Name and describe poisons snakes in your locality.

17. Learn the common causes of water contamination and study simple means of testing for it.
18. Keep an accurate record of your weight each month. If you do not gain some each month, consult your physician.
19. Keep an accurate sleep chart. Consult an authority on the proper amount of sleep needed for your age.
20. Plan an ideal school lunch for a week so as to include foods which your body needs for health.
21. Inspect a fly with a microscope. Look at the sticky pads of fine hair on his feet. Suggest a list of germs he might carry from place to place.
22. Make a list of exercises you like to do. Check them with an authority to see if they will give you the proper kind and amount of physical exercise.
23. Make a dental check calendar to remind you of the proper care of your teeth.
24. Plan a campaign with a friend for good posture. Practice daily, and check results by means of a chart.
25. Discuss means of reducing absences that have occurred in your room due to illness for any month.

SAFETY IN TRANSPORTATION

The complexity of our transportation system, the high speed by which this system operates, and the great total fatal accident record on our highways, have caused people to think of automobile or grade crossing

when the word "accident" is mentioned.

The agents of transportation were responsible for more than one-fourth of all fatal accidents in 1937.[4] The problem is a grave one and is constantly becoming more acute. There are a number of factors involved in these accidents, some of which are directly related to science. Therefore science may assist in eliminating some of these accidents. Excessive speed, very low speed, glare from approaching headlights, faluty mechanism, recklessness, poor thinking, bad attitude, and selfishness are some of the factors involved in accidents.

1. Broken windshield glass. Many injuries are caused in automobile wrecks by broken glass. Much of this may be prevented by the use of shatter-proof glass.
2. Blow Outs. Another common cause of "turn overs" is a tire blowing out. Air, as any other matter expands when heated. Tires are heated even in cold weather considerably by friction. Tires are easily checked, and should be, especially under hard driving conditions.
3. Lights. Faulty head and tail lights, head lights poorly focused, no lights at all cause many serious accidents. Proper adjustment is necessary for maximum protection and should not be neglected.
4. Faulty Mechanism. Especially steering gears, crystallization of vital parts, and freezing of brakes, cause many fatal accidents. These faults may be eliminated by periodic check-ups by a competent mechanic.

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4 Accident Facts, National Safety Council, 1937, p. 6

5. Inertia. The lack of knowledge of the principle of inertia results in many accidents. A car going forty miles per hour can not be stopped in twice the distance that a car going twenty miles an hour can be stopped.

PUPIL ACTIVITIES IN CONNECTION WITH SAFETY IN TRANSPORTATION

1. Learn what shatter-proof glass is, why it will not shatter, and how it is made.
2. Illustrate, with rubber ballons the effect of heat on air. Explain how air expansion in a tire might cause an accident.
3. Place a clean, dry saucer or platter upon a table. Take a pencil, earser end down, and hold it against the platter at an angle of about forty-five degrees. Push firmly. Note results.

   Place a small quantity of water in the platter and repeat. Note results. Explain how this is applicable to driving conditions.
4. Make a good self-check test for drivers.
5. Make a good self-check test for pedestrians.
6. Make a table showing distances in which cars may be stopped while traveling at various rates of speed. (under ideal conditions)
7. What causes "freezing" of brakes, and how may it be prevented?
8. What makes the electric wig-wag operate?
9. Draw a safety map of your best way home.
10. Check your means of transportation to and from school for

hazards and make suggestions for their elimination.

SAFETY IN RECREATIONAL AND LEISURE TIME ACTIVITIES

Leisure time or vational time usually brings its share of accidents and the necessity for precautions.

A few common accidents pertaining to leisure time will be suggested here.

1. Kites. Kite flying presents a very dangerous hazard, especially if the string becomes wet, if the string has any conducting properties herein, or a wire being used for a string. These hazards are more dangerous near high tension wires.
2. Hiking. Hiking presents a few hazards which are worthy of mention, and especially in mountainous regions, where the action of rain, frost, or some other natural phenomena, may have made it easy to start landslides. Care also should be taken when stepping on stones, to see if they are fast. Take plenty of rest when ascending steep grades.
3. Pests. Insects, poisonous shrubs, snakes, etc., cause pleasure seekers inconvenience and pain. Everyone may well learn to recognize these hazards.
4. Swimming. During recent years, drowning has ranked next to motor vehicles as a cause of accidental deaths of persons between the ages of ten and nineteen years.

   Herbert James Stack, Ph. D., made a study of the drowning fatalities in the United States and as a result of this study

found the causes fell into three classes, namely: non-swimmers, swimmers, and contributory causes. Table I shows the ranking by experts the causes of water accidents.

5. Drinking water. Contaminated water is especially to be watched and avoided on camping trips and hikes.

6. Fires. The campfire, so essential to the happiness and comfort of the camper and hiker, should be carefully guarded while in use, and expertly extinguished before left so that there is no possible danger in it starting again.

Many costly fires have started from campfires and the like that should have been watched or extinguished.

According to the records of the U. S. Census Bureau there are about 8,000 deaths, annually from burns and conflagrations.[5]

The total estimated fire loss in 1935 was $248,763,856 including forest fires.

The forest fire cost in the United States in 1935 was a great deal less than for 1934. In 1935 only 242,000 acres burned at an estimated cost of $567,560 plus $1,446,841 for fighting.[6]

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5 Accident Facts 1937, p. 18

6 Agricultural Statistics 1937, p. 441

TABLE I

AVERAGE RANKING BY EXPERTS OF CAUSES OF WATER ACCIDENTS*[7]

Cause	Average Rank
Non-Swimmers	
1. Boat or canoe tipped over	3.4
2. Non-swimmer goes beyond depth or steps in a hole	3.4
3. Carried out by undertow or river current	4.2
4. Drowning from passenger or freight boat accident	4.5
5. Drowned in floods	5.2
6. Overloading of boat or canoe	5.2
7. Heart attack or cramps	5.7
8. Drowned after attempt at rescue by swimmer	7.2
9. Fell through ice or fell into water	7.5
10. Struck by object or injured by blow	9.4
11. Fell into water in home--old well, cistern, or bath tub	10.0
Swimmers	
1. Poor swimmer trying to swim too far without protection	2.0
2. Stomach cramps, other cramps or heart disease	2.1
3. Solitary swimming (going swimming alone--causes unknown	3.0
4. Carried out by undertows or current	4.0
5. Drowned trying to save another person	4.9
6. Swimmer but drowned by long immersion in cold water or exposure	6.5
7. Boat or canoe capsized	7.0
8. Fell through ice	7.5
9. Drowned in shallow water, struck by object	8.6
**Shallow diving, diving in muddy water.	
Contributory Causes	
1. Taking chances swimming too far from shore	3.0
2. Inadequate protection at waterfront or pool	4.0
3. Disobeying instructions of life-guards	4.0
4. Going into water too soon after eating	4.1
5. Overloading boats, canoes or other craft	4.6
6. Inadequate life belts, preservers or other safety devices on private or public boats	4.6
7. Playing or fooling in a boat	5.0
8. Swimmer but did not know life saving methods and lost trying to save another	6.4
** Going in water when fatigued or overheated.	

*Number of experts rating, 9.
**Given by raters as causes but not rated by all.

7 Herbert J. Stack, Safety Education In The Secondary Schools, National Bureau of Casualty and Surety Underwriters, New York, p. 35

STUDENT ACTIVITIES IN CONNECTION WITH SAFETY IN RECREATION AND LEISURE TIME

1. List the dangers that might be encountered in flying kites. Suggest safe and sane places for such activity.
2. What causes landslides? How may rain or frost tend to cause landslides?
3. List poisonous shrubs in your community and tell how each can be identified.
4. List means of preventing inconveniences by insects. Suggest precautions one should take in selecting a camping ground.
5. Make a study of the snakes in and around your community and list localities where poisonous ones are found, and how they may be identified.
6. List dangers involved in swimming in the ocean, lakes, rivers.
7. Make a list of statistics on the amount of damage done in your state by forest fires for a year.
8. Learn the causes of water contamination and study simple means of testing for it.
9. Ascertain the source of your local water supply and how treated.
10. Find out from a doctor why you may cramp from going in swimming too soon after eating.
11. Plan a complete first-aid kit to suit your vacation trip.
12. How can you prevent sunburns? Treatment?

SAFETY IN THE SCHOOL ENVIRONMENT[8]

In the age group 5 to 14 years (the closest approximation to the school child group given by the U. S. Census Bureau's Records) the accidental death total for 1935 was 7,808. The death rate per 100,000 population was 32.1, which is lower than the rate for either pre-school children or adults. It is estimated that deaths among children 5 to 14 years old increased to 8,400 in 1936 (about half of the increase consisting of motor vehicles deaths) but even with this advance the death rate was only 34.6.

In 1922 when serious efforts were first made to develop a national safety education program, the accidental death rate in the age group 5 to 14 years was 40.8. The 1936 rate of 34.6, therefore, represents a decrease of 15 per cent from the 1922 rate. In contrast, the death rate for all ages increased about 24 per cent for the same period.

A few years ago a special study of absences due to accidents was made of students in a number of Texas schools, in some of which little safety education work had been done. It was found that the average absence per 1000 students was about 170 days during the year. On the basis of this average the total absence for all school children in the United States would be 5,000,000 days. In the schools reporting student accidents to the National Safety Council, schools in which safety education work was begun several years ago, the average absence from accidents was only 58 days per 1000 students. This figure would indicate a national total of 2,285,000 days absence.

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8 Accident Facts 1937, pp. 12-13, 90

Probably the correct total lies between the two approximations, and it seems very conservative to place it at 3,000,000 days. This national time loss is equivalent to the continuous absence for the school year of about 17,000 pupils, or, say, of half the school children in a city as large as Tulsa, Oklahoma.

Student accident reports received by the National Safety Council during the school year 1936-37 show that about 18 per cent of all accidents occurred in the school buildings, 17 per cent on the school grounds, 7 per cent on the way to or from school, 28 per cent at home, and 30 per cent at other places. The most dangerous places in the school buildings were the gymnasium, the stairs, and the vocational shops. School ground activities resulting in the most accidents were football and unorganized play.

DISTRIBUTION OF SCHOOL GROUNDS ACCIDENTS:

1. Football ---------- 15 per cent
2. Apparatus ---------- 14 per cent
    a. swings
    b. slides
    c. teeters
    d. bars
    e. others
3. Other athletic games ---------- 20 per cent
    a. baseball
    b. basketball

c. Soccer

d. track events

4. Other organized games ---------- ------- 10 per cent

5. Other school ground activities ---------- 41 per cent

DISTRIBUTION OF SCHOOL BUILDING ACCIDENTS:

1. Class rooms ---------- 13 per cent

2. Vocational shops ---------- 14 per cent

3. Others ---------- 18 per cent

a. toilets and wash rooms

b. dressing rooms and etc.

4. Corridors and stairs ---------- 20 per cent

5. Gymnasium ---------- 35 per cent

a. swimming pool

b. locker rooms

DEATHS GOING TO AND FROM SCHOOL:

1. Motor vehicle accidents ---------- 35 per cent

2. Other accidents ---------- 65 per cent

STUDENT ACTIVITIES IN CONNECTION WITH SAFETY IN THE SCHOOL ENVIRONMENT

1. Plan a safety organization for your school. What officers will you have? What will be their duties?
2. Make a survey of your building. How many doors swing with traffic? How many against? Which is better and why?
3. Organize a clean-up group for your school grounds. How does this aid in promoting safety?
4. Draw a plan of your school ground showing where each type of activity should take place for the greatest safety of all.
5. Make a general survey of the grounds and buildings of your school for hazards of any kind and suggest a remedy.
6. Make up an accident report card. Suggest reasons for school authorities needing to keep such records.
7. Suggest a list of general rules that would tend to reduce our school accidents.
8. Keep a record for a week on any playground activity for accidents or near accidents.

E. MATHEMATICS

While mathematics does not entail physical dangers, the correlation of accident-prevention with the subject is limited to discussion of safe practices, a means of motivating the subject, etc. For example, making graphs and finding percentages from given statistics that are taken from

accident facts over periods of time might prove more profitable or usable for the student than the solution of abstract theorems. Any pretext for using safety in mathematics should be seized by the teachers of that subject. Many times local traffic problems will offer good material for graphs, charts, and problems of various kinds.

The purpose of the material offered in this section is to present an outline and an incentive for the teacher to develop safety consciousness among the pupils.

The alert teacher, however, will find many many problems in accident-prevention that may be reasonably correlated with mathematics. It will be much better if the teacher would introduce safety ideas only in those problems that lend themselves readily to such correlation. The problems presented below only indicate the types of problems that are particularly well suited to this purpose.

SUGGESTED TYPES OF PROBLEMS FOR TEACHING SAFETY

The problems suggested here will be of the following type:

1. The right triangle
2. Grade per cent and the tangent of an angle.
3. Comparison of statistics.
4. Charts and graphs.
5. To show from a speed and distance chart, the effectiveness of brakes.
6. Cost of safety devices.

The right triangle. Very little time is saved by going diagonally across a street or intersection. A person, however, does add materially to the danger of crossing for a number of reasons. First, it is customary that pedestrians cross only at street crossings. Second, it confuses motorists and makes it at right angles more difficult for them to miss a person. Third, the motorist is not on his best look-out for pedestrians between street corners.

1. Draw a square ABCD. The diagonal of a square is approximately 1.4 times the side.
2. On a street that is 40 feet wide, how many feet are saved by crossing the street at a 45 degree angle, on a square.
3. Two 50 feet streets cross. How many feet are cut off by going across diagonally.
4. A soldier walking at 60 inches per second, cuts diagonally across a 40 foot street intersection. Approximately how much time does he save? Do you consider the time saved, worth the risk?
5. How long does it take you to walk the distance across the average street in your town. Use stop watch and ordinary speed of walking across streets.
6. Show by a diagram some reasons why motorists become confused by pedestrians crossing the streets diagonally.
7. How long will it take an automobile traveling at 30 miles per hour to travel 300 feet? At 45 miles per hour? How far do you walk in the same length of time?

Grade Per Cent and Tangent of the Angle. Automobiles are geared so as to climb any grade where the rear wheel can secure sufficient traction. Drivers should be careful to use the gear that is needed for the grade

they wish their car to climb. Accidents sometimes occur because drivers do not do this. The same rule should be applied in going down grades. Have your car in the same gear to go down a grade that you would have to use to go up the same grade. A car should always be left in gear going down hills; coasting is not only illegal in most states but dangerous.

The grade of a road up a hill or down one, may in indicated by the tangent of the angle. The grade of the road is the perpendicular distance risen divided by the horizontal distance covered. If a perpendicular distance of 60 feet is gained by covering 200 feet horizontally the grade would be found by dividing 60 by 200, or 30 per cent.

1. Is 30% steep for a road?
2. What gear would be necessary for a car to safely climb a 30% grade?
3. Do you think it would be a safe practice to rely on brakes to descend a 30% grade?
4. Draw a diagram to represent a 6% grade.
5. If the altitude of the triangle in problem 4 is 2 inches, what will the base be?
6. If a city block is 600 feet, how much rise would there be in a block having a 6% grade?

Comparison of Statistics.

1. Accident statistics are comparatively easily obtained and show the increase and decrease of effectiveness of safety campaigns. The statistics used here are intended to show the difference of accident totals over a period of years for the purpose of strengthening the pupil's safety consciousness.

TABLE II

DEATHS PER 100,000 POPULATION, 1913 TO 1936; ALL ACCIDENTS, AUTOMOBILE ACCIDENTS RAILROAD ACCIDENTS
(U. S. CENSUS BUREAU DATA)

Year	All Accidents	Automobile Accidents	Railroad Accidents
1913	85.5	4.4	13.0
1918	82.2	10.4	10.2
1923	75.8	16.5	7.3
1928	79.4	23.3	5.9
1929	80.9	25.7	5.8
1930	80.7	26.8	4.9
1931	78.5	27.1	4.4
1932	71.3	23.6	4.1
1933	72.4	24.9	4.3
1934	79.9	28.5	4.1
1935	78.4	28.5	4.2
1936	86.4	29.4	no estimate.

From such tables of statistics as Table II above many mathematical problems could be formulated.

1. How many years are represented in this table?
2. How could you find the number of accidental deaths by automobile in the U. S. in any given year?
3. How many more deaths from train accidents than from automobile in 1913?

4. How many more deaths from automobile than from train accidents in 1935?
5. Which shows the greater gain in number, automobile or train accidental deaths? What is the reason for your answer?

Charts and Graphs. The making of charts and graphs is an excellent way in which to call attention to the meaning of a group of figures. Tables similar to the ones used on preceding pages are examples of materials that can be used for making charts and graphs.

1. Have pupils to prepare a line graph, a bar graph, and a circle graph, showing facts found from some suitable accident table.
2. Secure local statistics and graph results.
3. If school records are kept on accidents, graph results. The wide-awake teacher will take advantage of such opportunities to make safety education vital. The class could assemble these local, especially school statistics in the form of charts, file in the library as a part of the history of your school accident records.

Automobile speeds and braking distances. Speed in relation to the distance required to stop an automobile is an important factor in traffic accidents. Safe speed depends upon driving conditions and how quickly you can stop. Effective brakes—firm, smooth road surfaces—good visibility increase the speed at which you can safely drive, but, you should always drive at a speed slow enough that you can stop in the distance you can see to be clear.

With commercially perfect brakes, safe, tires, and ignoring any possible slowness of seeing or reacting to what you see, the distance and time required to stop safely is stated in the following table is intended to impress pupils with the need for care when driving an auto-

mobile and to point out the additional risk involved in high speeds and on uncertain road surfaces.

TABLE III

AUTOMOBILE SPEEDS AND BRAKING DISTANCES

Running Speed M.P.H.	Rough Concrete		Firm Gravel		Wet Creosoted Wood Blocks	
	ft.	sec.	ft.	sec.	ft.	sec.
20	14.8	1.01	26.7	1.82	133.6	9.10
40	59.6	2.02	107.0	3.64	536.0	18.20
60	133.5	3.04	240.0	5.45	1,200.0	27.20
80	238.0	4.05	430.0	7.29	2,145.0	36.40

1. Note the difference in stopping distance on various surfaces. (Recall that safe speed depends upon ability to stop.)
2. How far will a car travel in one second at each speed given above?
3. Explain what each column means.
4. Can you give a good reason for a person driving an automobile over 60 miles per hour?
5. At a speed of 60 miles an hour, is the stopping distance three times greater than at 20 miles an hour? How many times as great is it? (answer to one decimal place)

The Cost of Safety Devices.[1]

The tendency now in larger cities is to use automatic traffic

1 Manual of Safety--Automobile Club of Southern Calif.,1931, p. 103

signals, magnetic wig-wag signals, and the like for controlling traffic at congested street crossings. The railroad companies also erect such signals at dangerous grade crossings. The cost of such signals is enormous. These figures may be used advantageously in mathematics classes to emphasize this enormous expenditure of money for the installation and maintenance of devices for the protection of property and human life. Another interesting study in connection with the tremendous costs of devices and methods for protecting lives and property against traffic accidents can be made by using data, setting forth the cost of marking pedestrian crosswalks at dangerous street intersections, marking safety zones, and painting the center lines on highways.

Automatic Traffic Signals. The average price of one automatic traffic signals of the type most commonly used is about $192.50, and that it will cost an average of $1,075.00 to install for signals of this type at a single intersection.

The annual cost of maintenance amounts to about $120.00 per intersection.

Magnetic wig-wag signals. A prominent railroad corporation operating in California quotes their cost of providing a magnetic wig-wag signal at grade crossing to be about $380.00. Annual operation cost, (power, repair parts, and labor) $125.00.

Pedestrian Cross-walks. In large cities, there are two common methods of marking pedestrian cross-walks. One is by using paint and the other is by using metal markers. If paint is used to mark these safety lanes, the cost runs about 2¢ per foot per line; and if the metal markers are used the cost is 12¢ per foot per line.

Center Lines on Highways. The cost of painting center lines on highways to designate the exact center of the roadway is about 1¢ per foot. If metal markers are used, the cost of installation and material is increased to about 4.2¢ per foot.

Suggested types of problems for use in connection with these statistics

1. Determine the cost of equipping an average street with automatic traffic signals, and of operating them for two years.
2. A rialroad company operates their equipment over a main line right of way 2,225 miles long. Their engineering department reports that dangerous grade crossings exists along the full length of the line at intervals of 25 miles. If magnetic wig-wag signals are to be installed at each crossing, determine the cost of the signals, cost of installation, and cost of maintenance for one year.
3. What is the width of a busy down town street? Determine the cost of painting safety cross-walk zones on at least two corners and for all four crossings at each corner. Metal markers?
4. If two cities are 325 miles apart on the same highway, how much would it cost to paint a center line on the highway between the two cities?

F. SOCIAL STUDIES

The opportunity for safety instruction in the social studies.

"The life-together" is an expression by which teachers of social studies like to stand. In the geography courses, they try to show the

pupils the factors of environment which affect their life-together. In history courses, they are interested in showing how that life has come about and developed. In the other fields of social studies, citizenship, civics, economics, political science, and the like, they are actually at work interpreting the problems, duties, and the privileges that are involved in this complexity of human relationship. It is logical and natural then, that safety education should find its place in the field of social studies.

Strangely enough to say, that the social studies, as taught in schools, do not always reflect the true human relationship as it actually exists. This situation may be due to the fact that the social studies have been so securely entrenched in the secondary school curriculum for the past quarter of a century. Revision in the curriculum is sure to come. There is too great a demand on the schools to meet the need of its pupils. Safety, is a reality. Therefore, the social problems must be built around true examples of life situations.

Safety education is a problem of environment; a civic problem; an historical problem; and judging from statistics quoted above, safety education should be a vital factor to the America of tomorrow which is in the schools of today. Instructor who are interested because they feel a responsibility for posterity will be ingenious in finding applications. The suggestions for activities are by no means exhaustive or all inclusive, but are merely to stimulate though for the alert teacher.

SUGGESTED STUDENT ACTIVITIES IN CONNECTION WITH SOCIAL STUDIES

1. Organize a high school automobile club, or safety council.
2. Make a special study of the motor vehicle laws of your state and local community.
3. Organize visits to local civil departments to learn their particular function toward society, such as--police department, fire department, health department, water department, and the various county offices.
4. Develop a safety publicity committee for the purpose of securing literature, programs, statistics and the like for public use.
5. The class, or a committee of the class may be directed toward dramatizing scenes such as, "Service Station Etiquette", in which the various activities encountered in the business of servicing an automobile. The various hazards should be brought out, as: those who fail to stop their motors while the fuel tank is being filled; those who alight from their cars, smoking; careless drivers who start to back out of a driveway without noticing waiting cars just behind them; carelessness of attendants also should be brought out.
6. The class may also be interested in developing road codes, for good drivers and careful pedestrians.
7. Traffic courtesy may be discussed. What are some dangers arising when courtesy is not present in traffic?
8. Discuss the possible result in traffic accidents, if the "Golden Rule" was practiced by drivers and pedestrians.
9. What is a blind corner? How many do you know about in your community? What precautions should be taken in approaching one, and what would you recommend as an improvement for "blind corners"?

10. Discuss the reasons for having regulations regarding parking too near fire plugs. How could lives and property be lost by failure to observe such regulations?
11. The problem of responsibility when an accident occurs may be presented. Illustrations of the rejunevated car, operated by a pupil who has not the ability to meet accident hazards, and who carries no insurance. How is responsibility to be placed?
12. During the world war, people were convicted for sabotage. Would it be possible to accuse anyone of sabotage in connection with accidents? Explain.
13. Some members of the class may be interested in historical characters whose records have shown them to be vitally concerned with the protection of life and property. Papers, talks, or dramatizations could be developed to show safety as a basis for all productive living.
14. The ages of transportation would make a good subject for an historical topic.
15. By reference to the description of colonial kitchen equipment, and by tracing the development of kitchen equipment and utensils up to the modern kitchen with its plumbing, electrification, and high speed equipment, a phase of our national history may be traced. In each step, however, the interest should be directed to the question: why was that improvement made? The same study can be carried on in connection with American architecture, street and highway engineering, factory construction, railroad development, and many others.
16. The outstanding inventions may be studied as to their force on civilization and how safety features have usually been characteris-

tics of these inventions such as the cotton gin, sewing machine, electric telegraph, steam engine, steam boat, radio, electric light, and the like.

17. Show some proof that the ancient peoples of Egypt, Greece, Rome, and others were interested in safe conditions in their streets, palaces, their baths, and their monumental structures.

G. HEALTH AND PHYSICAL EDUCATION

Health education, playground activities, and athletics offer a fertile field for both direct and incidental teaching of safety. Since large numbers of accidents are the result of poor coordination, lack of condition, inadequate warming up, improper equipment, mis-use of equipment, inefficient leaders, the type of game, and unfamiliarity with the rules of the game, and since physical education should tend to correct these faults, it seems almost unnecessary to point out the need and possibilities of safety instruction in physical education.

Most teachers are aware of the possible dangers of many physical education activities, and athletic contests, but often do not know just how to anticipate or prevent their occurance. Properly considered, these dangers offer a real opportunity for the teaching of safety in connection with physical education and competitive athletics.

There are few activities, that do not present some element of risk or danger. To exercise caution, give warnings and admonitions, should be a part of the instruction in this field.

The suggestions that follow are offered only to stimulate thinking

among our conscientious teachers and coaches with the hope that a large per cent of the 3,476 fatal accidents (number deaths resulting from physical education, playground activities, and athletic contests 1936) may be prevented.[2]

Physical education accidents that might have been avoided. Through personal interviews or from newspapers or magazines, pupils may collect accounts of playground, swimming pool, gymnasium, and athletic field accidents; and with a complete description of the circumstances, point out precautions that would have prevented the accidents. Scrapbooks of such accidents and the students' suggested precautions may be made, properly indexed and filed in the library for future references.

Physical education dangers and ways by which they may be avoided. Have pupils to list a number of the more important hazards to which the participants in various activities are subjected, and give precautions that should be exercised in each case. Use demonstration method when possible.

Athletes as insurance risks. Have a class committee to call on an insurance company or representative, for information as to the rating of athletes as insurance risks, and the reasons for so rating them.

Infections. There are a number of infections that seem to be encouraged by athletic participation, such as boils, ringworms, abrasions, blisters, various forms of itch, et cetera. Have pupils to secure information as to the prevalence of these conditions in their own school and suggest ways to prevent such infections.

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2 Accident Facts, National Safety Council, 1937, p. 90

Safety measures for the athletic field, playground, and gymnasium. Have a class committee work with a sub-committee of the general school safety committee, to draw up a set of safety rules for the athletic field, playground, and gymnasium, such as are established in most schools for traffic in halls, on stairs, and in fire drills. This list should be made up of general safety principles, applied to the physical education facilities and equipment, showing safety on the athletic field as only one aspect of safety in general, as well as to provide some specific guides to safety.

Safety in athletics and in the use of apparatus. With almost every physical movement there is possibility of some sort of safety practice. the opportunities are too numerous to list separately, however, some attempt will be made to classify them by activities and setting up some of the most common injuries or dangers in each of the following activities: football, basketball, base ball, track and field work, wrestling, boxing, tennis, golf, swimming, archery, gymnastic stunts on apparatus, tumbling, horseshoes, and general playground games. The most common dangers present in group games are incurred by personal contact. In stunts, the dangers are due more to individual carelessness, recklessness, or inability to judge strength or distance. Gymnastic apparatus calls for detailed instructions as to its proper use. Also there should be much instruction and training in the best ways of giving assistance to fellow performers so as to avoid accidents.

Football. Injuries in football get more publicity than do injuries in any other sport, due partly to the nation-wide interest in the game and partly to the stress laid on football fatalities in recent years by the newspapers. Injuries, the bug-bear of coaches, have lost many games.

The modern coach, instead of treating injuries after they occur, prevents them so far as possible through instruction and precautionary measures.

In the attempt to eliminate the hazards of the game it is necessary to insist on proper training and conditioning. One who is to take part in a game as strenuous as football should obviously be in the best physical condition. The majority of football accidents come from collision with other objects, being stepped upon, blocking, forgetfulness, jumping for the ball, tripping over foreign objects and lack of familiarity with the rules of the game.[3]

There are other causes of injury, such as poor or insufficient equipment, rough ground, insufficient number on the squad to supply adequate replacements. Injuries often come when a player becomes fatigued and is not replaced soon enough. This condition should be watched closely by trainers, coaches, and even among players themselves to see that this type of injury is kept to a minimum. Playing with slight sprains or other injuries often contributes to more serious ones.

Mass formations, flying tackles, hurdling, piling on, and other such tactics should be sharply restricted. Players with a personal grudge against another player on the same or opposing side may easily inflict injury. The players should be taught to "play ball game" rather than attempt to "get" a certain opponent. Most football accidents happen to "sand lot" teams improperly coached, equipped, and controlled.[4]

Basketball. In basketball, as in football, sprained ankles, blistered feet, and injured fingers make up a large share of the accidents. What was said about general precautionary measures in football may be applied

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3 Frank Loyd, etc. Safety in Physical Education in the Secondary Sch.,p.20

4 Kreml, Stiver, Rice. Public Safety, 1937, p. 57

to basketball as well. In this game there are many facial injuries, especially to eyes, mouth, and nose, as a result of too much bodily contact. The successful coaches teacher their boys to keep away from their opponents, avoid bodily contact as much as possible, and break for an opening when there is an opportunity to do so.

There is a particular danger from falls on exceptionally dirty or oily floors. Paper on the floor is also a serious hazard. Floors should be inspected before attempting a hard practice or a game.

Inadequate lighting or lights too bright or improperly focussed will cause eye-strain of players and spectators. This is inexcusable with our modern lighting facilities and should not be tolerated by school authorities.

Since basketball is an indoor sport, adequate ventilation should be maintained to keep the air fresh, and not too warm. The spread of respiratory infections, such as the common cold, is often caused by improper ventilation. This is especially true on game nights when large crowds are in attendance. The crowd will raise the temperature of the average gymnasium from ten to twenty degrees. This means, of course, that the temperature should be below the desired level for games prior to the opening of the doors to the public.

One of the most common dangers indulged in by the team, is the use of the common towel and common water bottle. The players should have individual towels and cups, or none at all. If one player has a cold, he is likely to infect the entire squad and reduce the efficiency of its members for several days. It is poor playing and coaching policy to follow such a practice. It also sets a poor example for all your fans and is offensive to many of them.

The cleaning of equipment is a very important item, especially in basketball because of the excessive perspiration of the players.

Come care also should be taken in the season's schedule. Many schools schedules too many games for the strength of their squads. Do not play games in excess of the reserves of your teams.

One of the objectives of education is the teaching of health for a more useful citizehship. Health teaching is not successful unless it is followed up by health practices. Therefore, players and school authorities should be very careful about setting examples which will counteract what is being taught.

Baseball. Whether playing baseball or soft ball, the chief dangers are getting hit with bats or batted balls. If players will stand on the opposite from the way the batter is swinging, there is little danger of getting hit with a bat. Another good rule to follow is to stand back "far enough". Players should be careful not to throw the bat or let it slip out of their hands while they are batting. Getting hit by a batted ball is usually caused by crowding the base lines or by not watching the ball during progress of a play. Spectators are not players, so they should remain far enough that they will not interfere with the game. If these precautions are observed there is little danger of getting hit.

Another common hazard in baseball is improper sliding into bases. Sliding bases head first is not advisable for two reasons; one, it is not considered good form, due to ease with which the baseman may tag the runner; two, many more injuries result from this type of slide. The majority of coaches teach the "hook slide". This is more difficult to learn possibly, and requires more practice, but is generally used by the best ball players. The most common danger to this slide is that players

become careless, hood their spikes on the ground or the bag, resulting in sprains, bruises, and in some cases, a broken bone.

Many finger injuries can be eliminated by proper instructions in how to catch a ball.

Another type of injury common to baseball is "sore arm", usually caused by young, inexperienced players trying to throw too hard or attempting to curve the ball without proper preliminary training. The arm should be thoroughly conditioned before hard or continuous throwing takes place. This condition usually results in an impairment of the elbow or shoulder joint which requires a long time to recover. In some cases the individual never fully recovers.

Proper instruction to young catchers will prevent many hand injuries. The catcher should play up under the batter. There is very little danger getting hit by the bat and a lot less danger being injured by a foul "tip".

The danger of collision of players in fielding balls can be prevented by some player being designated to call all fly balls for players in that area.

The general conditioning and care of equipment necessary for other sports is also applicable to baseball.

Rough ground has been mentioned in a general way as another common hazard to any sport. Not only is it dangerous for running players, it also makes fielding a ball much more difficult.

Track and Field. The chief causes of accidents in track and field evens are collision and falling. Collision with other persons is usually caused by inadequate supervision or by tripping or slipping. In some events such as the half-mile, or the 440 yard dash, the field of starters

is so large that crowding takes place on turns. This condition can be helped by proper supervision.

Runners sometimes fall at, or after, the finish of a race. This is due to poor conditioning or improper training. It is dangerous and unnecessary.

In the hurdle courts, there is some danger of tripping on the hurdles. This is due to the nature of the event and can not be eliminated, although practice will minimize this danger.

The jumping and vaulting events are responsible for approximately sixty-seven per cent of the accidents and eighty-six per cent of the days lost incurred in the track and field events.[5]

The major precautions to be taken in the main track and field events are given below.[6]

High jump:

(a) Have pit dug up and filled with soft material.

(b) Provide standards that will not easily tip over and a cross bar that will not splinter badly in breaking.

(c) Rope off lanes and jumping pit.

(d) Teach jumpers how to alight so a s to avoid breaking an arm.

(e) Give instruction at low heights in getting form.

(f) Give careful instruction on "take-off" to prevent spraining ankle or spiking oneself.

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5 Frank Lloyd. Safety in Physical Education in the Secondary School, p. 22

6 Manual of Safety for Secondary Schools. Public Safety Department of Auto Club of Southern California, p. 71

Broad jump:

(a) Avoid "framed-in" jumping pits.

(b) Rope off lane and pit.

(c) Have jumping board flush with ground.

(d) Have only soft material in pit, no rocks.

(e) Instruct and rehearse officials how to step in to measure jumps.

(f) Teach the jumper how to alight properly.

(g) Be sure that officials or performers remove rakes or other implements after smoothing pit.

Pole vault:

(a) Give detailed and careful instruction in easy and graceful alighting, including preliminary jumping down into pit from an elevation to develop good form.

(b) Do not permit attempt at high records until performer has good form and control at lower levels.

(c) Provide the best grade of poles and have cane poles well taped.

(d) Give tumbling to all vaulters, especially backward rolls.

(e) Provide sticks that will not splinter badly in breaking, and standards that will not easily tip over.

Shot put and hammer throw:

Provide roped-off areas for practicing as well as competition. Do not permit any spectators within roped-off area. Have competitors in area back of circle.

Discus:

(a) Have practice field roped off and well guarded as for shot and hammer. Establish custom of calling "heads up" just as throw is to be taken.

(b) Rehearse officials and caution them in all measuring.

(c) Have announcer to caution officials and others.

(d) Have throw from a cage.

(e) Do not permit attempts at distance throws until performers have developed good form and control at short distances.

Track events:

(a) Properly instruct competitors as to correct rules for passing on turns.

(b) Give instructions as to proper method of clearing track after baton has been passed in relay race.

(c) Establish custom of calling "track" so that runners may have a clear track, thereby eliminating the danger of injury from collision.

Wrestling. The most common hazards in wrestling are: cauliflower ears, mat burns, pulled sides, broken finger nails, water on the knee, sprains, strains and broken ribs.[7] Some of these are due to the lack of knowledge of the rules of wrestling, but many are mainly due to lack of competent officiating. This is particularly true in the elementary and junior high school.

The accidents are generally caused by undue twisting of fingers, arms, feet, legs, head, and neck before the muscles are in condition to

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7 Gallagher, Amateur Wrestling 1925, p. 13

withstand the strain placed upon them.

Wrestling should never be done without proper equipment, such as mats for protection from falls, mat covers of cotton flannel to protect against mat burns, and the like.

Another dangerous practice which is indulged in by some high school coaches, is that of "drying out" their boys. This is a process of reducing weight by means of heat, to produce perspiration and refraining from drinking water or liquid for such a length of time that the weight will be reduced sufficiently to allow the individual to enter a lighter class of competition than he would otherwise enter.

In the first place this is questionable sportsmanship, and, furthermore, it is without doubt injurious to the health of a growing boy. "Drying out" tends to lower resistance to respiratory diseases, such as colds, tonsilitis, and tuberculosis.

Boxing. There is little danger in boxing, if proper equipment is used. Mats or padding should provide adequate protection from falls. The contestants should pass a thorough physical examination and should have trained long enough to be able to stand the normal test of the sport. The gloves used should be properly padded and, for high school students, should weigh at least sixteen ounces.

There is some danger of hitting an opponent too hard without sufficient protection for the hands, consequently run the risk of breaking some bones. Adequate padding for the hands is necessary. The majority of injuries, such as those to the eye, ear, and mouth, are due to the nature of the sport and are rarely severe.

Experienced boxers should never be allowed to compete with beginners, and competitors should be classified according to weight, size, and ex-

perience. "Boxing", not "slugging", is the sport and the latter should be discouraged because it usually leads to frequent injuries.

Tennis. Tennis is a fast and strenuous game which involves big muscle activity. There are many starts, stops, and changes of direction necessary, with consequent strain upon the feet, ankles, and legs. Occasionally more or less serious strains, sprains, and falls occur. If gradual conditioning has taken place there is little danger from these. If they do appear, they may cause much loss of time and a great deal of pain.

There is some danger of getting hit by a ball, but this is not serious unless it strikes the eye, and this rarely happens. Persons with weak hearts should not play tennis.

Golf. The most serious danger in golf comes from being hit by a ball or a club. This can be due to carelessness either of the players or of the spectators who crowd too closely.

Players who deliberately hit the ball when others are within range are to be severely criticised and should have their playing privileges limited. Good golf etiquette should be a part of every golf lesson.

There might be danger of by-standers getting hit with a club, or a part of one, if standing too close to the player when he swings. If reasonable caution is taken, there is no excuse for a person being hit from a piece of a broken club.

Swimming. The leading causes of accidents to swimmers are listed in the section "Recreation and Leisure Time Activities" on page 56.

Archery. Getting hit by arrows is the greatest danger but is unlikely if the proper precautions are taken. Promiscuous shooting of arrows should never be done. While shooting is going on, all spectators

and contestants should be restrained behind a safety line. Shooting should be done only on an archery range, or in places not used by the public.

Apparatus. Many accidents occur in apparatus work, but they are not the fault of the apparatus itself, except in rare cases.

Some of the causes of injury in this work are lack of supervision, instruction, and safety measures, such as "catching", or giving assistance.

Giving assistance is a very important factor in apparatus work. Instructions in correct assisting should be an important part of the training of leaders. Select the most reliable and strongest pupils for giving assistance. It is best, at times, to have two assisting on one apparatus. The pupils must be shown where to stand, how to grasp the one exercising and to assist at the proper time. Do not allow the same one to assist too long at one time, as they become tired and inefficient. It is also a bad policy to have one who has just finished an exercise assist the next one.

The following is a summary guide to the safe use of apparatus:[8]

1. Giving assistance serves as a protection to the gymnast and assures confidence.
2. The following precautions must be taken so that no accidents occur:
   (a) The leader should assure himself of the safety of the apparatus before it is used.
   (b) Spectators should not stand so as to interfere with the gymnast.
   (c) No one should cross the approach lane to the apparatus.
   (d) Apparatus should not be used in a poor light.

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8 Manual of Safety for Secondary Schools, p. 73

(e) Damp or wet apparatus should not be used; neither should the hands be moist.

3. Danger while exercising will be lessened by a gradual rather than a sudden decrease in the difficulty of the exercises.

(a) No exercise should be attempted before its preliminary or developing exercises have been mastered; the "half giant" must not be attempted before the gymnast has learned the proper swing and the giant hip swing up.

(b) During vaults, the distance to and the height of the apparatus should be increased gradually.

4. The person giving assistance should watch the increase in difficulty and give aid if the gymnast cannot quite perform the exercise.

(a) The assistant should take hold at once if the gymnast's strength begins to fail. The impossible should not be required nor expected.

(b) Although courage and self-reliance should be required, nothing foolhardy should be demanded or permitted.

(c) The assistant should require a good position throughout the exercise.

5. Those giving assistance should be instructed in the holds used.

(a) Grasping the upper arm or shoulder before or during an exercise is used in most cases.

(b) Grasping about the trunk is used for high dismounts and for the straddle vault.

(c) Grasping the hand is used for the knee dismount from the horse; and grasping the wrist is used during the swing on the horizontal bar.

Tumbling. Tumbling appears to be more dangerous than it really is. The most serious accidents are usually sprains. Occasionally there are fractures, but these are rare compared to injuries in other activities.

There is some danger from carelessness on the part of the pupil. He should be careful to follow instructions. A good rule for any sport is: do not take unnecessary chances. This is especially true in tumbling. In all activity of this nature, proper safety measures should be taught so that the participants can help to protect one another.

Horseshoes. Horseshoe throwing is a popular game in many parts of the country, and it usually takes place on the school ground at play periods when the grounds are crowded.

The persons that are playing are seldom injured. The injuries are to the people who walk or run into the path between the pins. Care should be used in placing the pits near a fence or building where it is impossible for participants in other games to run between the pins. If such a place is not possible, then the horseshoe court must be fenced off in some other manner.

General Playground Activities. "Mass games" includes all games in which any number may play at one time, as relays, tag games, and similar games. The accidents in games of this kind are negligible if there is proper supervision and adequate leadership. Mass movements in rhythm may set up dangerous vibrations in buildings and concentration of players in one place may overload a floor.

The dangers of accidents on the playground can be greatly reduced by good field organization.

Student Activities in Connection with Physical Education.

1. List the play places of children in your neighborhood, describe the

games usually played, and tell why the place is or is not a safe place to play.

2. Make a list of general safety rules for games usually played in the gymnasium, or on the schoolground.
3. What is your opinion of a good athlete who gets injured, conceals his hurt, and trys to carry on for the good of the team.
4. Make a weekly training chart for the first six weeks of the season for the following sports.

   Football

   Basketball

   Baseball

   Track and Field

   Swimming

   Wrestling
5. Draw a plan of your school ground showing where different games should be played. Explain why.
6. How many principles of safety do you know, that you see violated frequently. Explain.
7. Do you think physical education should be a compulsory subject. Give your reasons.
8. Draw a floor plan of your school building and locate the best place for first aid cabinets.
9. Make a list of first aid materials for each cabinet.
10. Demonstrate 5 first aid principles.

H. VOCATIONAL SUBJECTS

The National Safety Council[9] reports about 18,000 deaths from industrial accidents during 1936, with a total number of non-fatal, or "lost time" accidents set at about one and one-half million, and a financial loss of more than six hundred million dollars.

If big business in the country recognizes the need for safety education in industry from an economic as well as a humanitarian standpoint, and can reduce its accident rate through an organized safety department, the public school may well profit by the example. Safety taught through vocational subjects should pay dividends on the time and effort expended in at least three ways, first, an elimination of lost time and suffering; second, a knowledge of personal safety measures beneficial to each student; and third, adequate returns to both the individual and the industry when the student leaves school to take his place in the industrial world. The organization and administration of safety in a vocational program should be very similar to that employed in an industrial program.

GENERAL SHOP RULES TO BE OBSERVED BY TEACHERS

The pupils should be safeguarded from hazards connected with the use of power machines and should be instructed in the use of all shop equipment and appliances. The following rules have been adopted from the manual in use in the vocational department of the Detroit Public Schools.[10] Their observance by both teachers and pupils will do much to prevent

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9 Accident Facts, National Safety Council, 1937, p. 56

10 Safety Regulations for Department of Vocational Education, Board of Education, Detroit, Michigan, p. 8

accidents.

1. Guarding high Powered Machines. Teachers for any reason finding it necessary to leave a shop equipped with high-speed and hazardous machinery should put such equipment out of commission before leaving. The appointment of a student helper to supervise such machine is not enough.
2. Use Good Placards, Posters and Slogans. Teachers should keep a good selection of placards and slogans in sight of all students.
3. Study of Instructions. All shop teachers should have a thorough knowledge of all rules and regulations pertaining to their particular shops or department. A discussion of some phase of safety education should be given at regular intervals to each class.
4. Personal Safety. In an emergency, personal safety shall have first consideration. First aid should be given by the teacher in charge.
5. Fire Signal. In case of fire signal, make an effort to turn off all power, gas, and electricity.
6. Turning off Current. The electric current should be turned off from all electrical equipment and appliances when not in use. Particular caution must be used by the teacher to make sure that this has been done before leaving the shop at the end of the day.
7. Oily Rags and Waste. Grease, oil and paint soaked rags, waste, or other combustible materials of like character shall be kept in approved self-closing metallic receptacles. These receptacles must be kept at a safe distance from other combustible materials, and their contents be disposed of at least once each day.

8. Open Flames. Open flames of any kind should not be permitted except in the case of gas ranges in the food laboratories, forges and melting furnaces in the machine shop, soldering furnaces, and acetylene welding torches. Careful instructions should be given to students before they are permitted to light such equipment. Lighted candles should be absolutely prohibited.

9. First Aid Cabinets. Cabinets or boxes to be used for first aid materials should be kept in all shops. These containers should be dust proof, kept clean and all materials labeled to show its use and application and kept in order. A first aid cabinet should contain amonia, absorbent cotton (in jar) adhesive tape, two-inch bandages, and a good anteceptic such as nitrophene or merthyolate.

10. Guarding Machinery. Neither teachers nor students should at any time use any power machine which is not properly guarded.

11. Safety Zones. A heavy black line should be painted on the floor around each hand saw, circular saw, planer, jointer, and print press giving at least a three-foot space all around the machine. This line should be about three inches wide. In addition, the area on the floor so marked off, especially where the operator usually stands should be kept painted and while the paint is wet sprinkled with sand to produce a rough surface.

12. Operating a Machine. When a student operates any of these machines, no other person but the instructor should be allowed inside the line. No one outside the line should be allowed to

talk to the operator of the machine, except in case of emergencies. Instructors should decide which boys may operate machines under their supervision.

13. Turning on Power. The power switch at each machine should be off before the main power supply is turned on. When starting power machinery or throwing an electrical current, instructors should always caution students to "stand clear of machine".

14. Cleaning of Shops. Shavings and waste materials are to be removed from the school shops at the close of each day's session. Teachers can cooperate with janitors by keeping all cabinets, shelves, tables, desks, and corners clean. Piling stock on the floor should be avoided.

GENERAL INSTRUCTION FOR BOTH TEACHER AND STUDENTS

The following are rules that should be thoroughly understood by both the student and their observance enforced by the teachers.

1. Operating Machines. Never operate a machine unless permission has been given by the instructor.

2. Rolled Sleeves. Instructors and students should roll their sleeves to the elbows and loose-hanging ties removed or so arranged as to prevent entanglement while working on revolving machinery. In general, loose fitting clothing, jewelry, or gloves on the hands should not be worn while working around machinery.

3. Starting a Machine. Before turning on the power always examine a machine carefully, to make sure every part is in working order. Start it by hand to see that all moving parts are free.
4. Oiling a Machine. Always stop a machine before oiling, cleaning or adjusting.
5. Out of Order. Lock the switch or hang an "out of order" sign on a machine that is out of order.
6. Seek Information. When in doubt concerning his work with power machinery, a student should always ask his foreman or instructor.
7. Undivided Attention. When operating a machine, students should give their undivided attention to the work. Never try to do two things at once.
8. Checking of Equipment. When accepting for use any equipment, examine it carefully and report any breaks or defects and thereby avoid possible accidents.
9. Guards and Safety Devices. Guards and safety devices are for the operator and should always be kept in place.
10. Order in Shop. Never fool with machinery nor run or scuffle in the shop.
11. Placing of Tools and Materials. Tools laid aside temporarily should be placed in a position which will not endanger other persons in the shop. Do not place materials or tools on the floor, nor on unguarded overhead trestles or platforms from which they might fall.
12. To Set Cutting Tools. To set cutting tools in a moving machine is extremely dangerous. Always stop the machines.
13. Leaning on Machines. Do not lean on machine while it is in

operation, and keep a safe distance from all moving parts.

14. Protecting the Eyes. Goggles should be worn while working at grinders, shapers, and while welding, pouring metal and when lighting furnaces.

15. Proper Footing. When working around any machine, be sure good footing is provided.

16. Oily Waste. Put all oily rags and waste in cans provided for such. It reduces fire hazards.

17. Misuse of Tools. The student should be taught the proper use of the tools and never be allowed to misuse them.

18. Pouring Metal. Before pouring any metal be sure that the mould is dry, to avoid injuries from spattering.

19. Projecting Set Screws. Avoid the use of projecting set screws, head on revolving parts.

20. Courtesy in Safety Habits. Students should treat their shopmates with courtesy and work in harmony with them, acquiring the habit of caution for their own protection and that of their shopmates. They should cultivate careful, thoughtful and deliberate habits of work, and develop a "safety consciousness".

This suggested list of general rules might be broken down to special rules for the operation of a particular machine, wherein the general rules may be augmented so as to cover the whole field of vocational shops.

SUGGESTIONS FOR THE TEACHER AS AN AID TO SAFETY INSTRUCTION

In addition to shop rules and the function of the general safety committees, students can be impressed with accident prevention methods in the following ways:[11]

1. A Discussion of Safety Problems. Safety problems should be discussed in all classes by the instructors. Emphasis should be placed on the safe methods of performing shop work, and these contrasted with unsafe methods and subsequent results. Special attention should be directed toward developing the students ability to perceive unsafe practices and supply the correct method.
2. Visiting Factories. If factories can be visited and safety devices and practices pointed out, the student can get first hand, the methods employed by industry to safeguard the workers and the shop practices employed for safety education and accident prevention.
3. Protective Equipment Furnished. Protective equipment such as goggles, asbestos, leggings, etc., should be furnished to students and they should be required to use them on designated types of work. In every instance the reason for the use of the devices is explained. The importance of making these rules habitual from an educational standpoint, cannot be overlooked.
4. Safety Rules. An adequate set of safety rules should always be available, and should be constantly referred to by the instructor

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11 R. R. Kampe, National Safety News, August, 1937, p. 21

when correcting the unsafe practices of students.

5. Debates and Plays. Safety subjects that offer good material for debate, and safety plays, either those that can be obtained from outside sources or written within the school, will serve to arouse interest if they are well done and carefully planned.

6. Safety Contests. Interclass, interschool, or interdistricts safety contests can be inaugurated with very good results. Either lost-time accidents or all accidents might be counted. An equitable basis for scoring can be determined by the shop hazards and number of students or the number of hours of accident exposure.

7. Student Speakers' Bureau. A student speakers' bureau might be created with the idea of training students to speak on subjects pertaining to safety, not only to school audiences but also before civic groups.

8. Education of Students Through Their Parents. Talks can be given to the various parent-teacher groups, luncheon clubs, civic organizations, etc., soliciting their aid in forming safe habits in their children. They should likewise be informed of the character of school activities along safety lines.

9. Fire Prevention. The problem of fire prevention should be correlated with the safety educational program in general.

CHAPTER V

SUMMARY

The first two chapters of this study, "The Need for Safety Education in Accident Prevention", and "The Need for Safety Education in the School", have a definite function in the development of the problem. First, before any type of program in accident prevention is attempted, there must be a thorough understanding of the need for such a program. Second, the program must be educationally sound. That is, it must be able to meet the needs of the majority of the group through a participation program by the pupils.

For the pupils to realize the greatest amount of good from any safety program it is necessary to use the same principles for teaching as is used in other learning situations.

Also in Chapter II is the result of the study of the White House Conference Committee on Safety Education. It reveals the tendency toward teaching safety through the existing curriculum, and through participating in safety organizations, such as junior safety patrols, school safety patrols, school safety councils, and other activity organizations.

Since the report of the White House Conference Committee on Safety Education shows that there is a definite tendency toward teaching safety in correlation with other subjects, the writer proposes a number of suggestions for developing such a program in Chapter I above. These proposed suggestions are by no means the final word nor all inclusive, but merely to bring a few necessary facts, and suggested activities that could be used in developing a course of study for a general safety

program in practically any type of community.

Also in the appendix there will be found many helps for teachers and aministrators of safety programs such as: (1) a supplementary bibliography of publications and visual aids for the purpose of extending the list of available materials for the reader, (2) accident report forms which will give an example of the information each community needs in order to more intelligently get at their own accident problem; (3) first aid suggestions concerning common types of injuries, their treatment, and some preventative measures; (4) check-lists for common hazards in and about the home and farm which could be used to a great advantage in getting the family to thinking "safety"; (5) forms or models of safety council constitutions which would be useful in forming such organizations within the school or community; (6) suggestions for school programs; (7) compilation of slogans etc.

From this compilation of sources and presentation of suggested methods of introducing safety through the various high school subjects, it is possible that an active safety program be organized in every community.

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APPENDIX A

SUPPLEMENTARY BIBLIOGRAPHY

The following is a compilation of references to materials that contain much valuable information relative to the subject of safety education in the secondary schools. This section is not designed to be exhaustive. It offers a list of readily available materials for teaching safety to school children.

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Usable in City-Wide Safety Programs

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Conservation of Human Life. Kansas Highway Department, Topeka, Kansas, 1936, 13 pages.

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Encourage "Real Driving" in your Community. Metropolitan Life Insurance Company, New York.

Guide for Traffic Violator's School. U. S. Department of Commerce. U. S. Government Printing Office, Washington, D. C., 1937-38.

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Safety Education. Commonwealth of Kentucky, Frankfort, Kentucky, 1937, 61 pages.

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News Letter - Home Safety - From National Safety Council, Mimeographed, monthly, 4 to 8 pages.

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THE BAD MASTER -- 16mm. sound or silent - 1 reel - 15 min., dangers of the careless use of fire.

SOUNDING THE ALARM -- 16mm. - 1 reel - sound - Reporting fires and dangers of false alarms.

SENTINELS OF SAFETY -- 16mm. sound - 1 reel - Home accident prevention film - 11 minutes.

HOW TO PARK YOUR CAR -- 16mm. sound - 1 reel - the correct method of parking your car.

THE UNIVERSITY OF OKLAHOMA. Dept. of Visual Education, Norman, Oklahoma. (a 25¢ service fee and transportation)

HORSE POWER AND HORSE SENSE -- (Catalogue #Z-43) - 16mm. sound or silent 1 reel - Chances that should not be taken in driving.

WE DRIVERS -- 16mm. sound - 1 reel - Avoiding accidents on the highway.

REMEMBER JIMMY -- 1 reel -- 16mm. sound -- a traffic safety picture.

U. S. BUREAU OF MINES, 4800 Forbes Street, Pittsburgh, Pa. (free)

CARBON MONOXIDE -- 16mm. silent - 1 reel - poisoning from gas and treatment.

LEARN AND LIVE -- 16mm. silent - 1 reel - The value of first aid.

Y. M. C. A. Motion Picture Bureau, 19 S. LaSalle Street, Chicago. ($2. membership fee provides use of many free films)

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ONCE UPON A TIME -- 16mm. sound or silent,1 reel - an animated cartoon of street safety and driving methods.

OVER HERE -- 16mm. sound - 2 reels - Eddie Rickenbacker explains the horror of war and tells how much we need greater safety on the highways.

HUMAN MILEAGE -- 16mm. sound or silent - 2 reels - Lowell Thomas telling of the reduction of accidents.

STOP FOREST FIRES -- 16mm. sound or silent - 1 reel - A.U.S.D.A. forestry picture, may also be borrowed from Washington.

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FOLLOW THE WHITE MARKER -- 16mm. silent - 1 reel - dangers of driving on the wrong side.

THE CHRYSLER CORPORATION, Detroit, Michigan; THE GENERAL ELECTRIC COMPANY, 1301 Lamar Street, Dallas, Texas; THE WESTINGHOUSE ELECTRIC COMPANY, East Pittsburg, Pa., Your nearest GENERAL MOTORS representatives and many others have good safety pictures.

TESTS

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Test for Automobile Drivers. George Washington University, Washington, D. C.

What's Wrong With These Drivers and Pedestrians. Travelers Life Insurance Company, Hartford, Connecticut.

APPENDIX B

ACCIDENT REPORTS

Compareatively few schools keep complete records of student accidents. Many schools file partial records of playground and school building accidents, not for remedial work but simply information which can be used in settling damage suits that may be entered against the Board of Education for injury to the students. Case records should be designed for work in accident prevention rather than simply listing the name of the injured and nature of the accident. Primarily, case records should show all the accidents in which the students are involved, whatever may be the location of the accident. Space should be provided for the listing of hazards and a place reserved for proper notation when the hazard has been removed. The following is an example of an accident report card:

Accident Report Card

Name _____ Date _____

Age _____ Injury _____

Residence _____ Tel. number _____

Cause _____

Location _____

Hazard _____

Previous Injuries _____

Removal of Hazard -- Yes, No Date _____

Student Accident Report

Every child in the public school of _____ is to report on this card every accidental injury which requires medical attention or which keeps him out of school one-half day or more. Teachers should fill out reports where children injured are unable to do so for any reason.

Who Was Hurt?

Name _____ Address _____

Age _____ Sex _____ School attended _____ Grade _____

When Did Accident Happen?

Date _____ Time _____ a.m. _____ p.m.

Where Did Accident Happen?

At school? _____ If so, in building or on playground? _____

On the street? _____ If so, where? _____

Was this an automobile accident? _____

If on the street, was it on the way to school? _____ From school? _____

At home? _____ If so, was it in the house? _____ Outside house? _____

If somewhere else, state where _____

How Did Accident Happen?

What was person doing when hurt? _____

Describe the accident _____

_____

What kind of an injury was it? _____

Was a doctor called? _____ If so, state his name and address _____

_____ Number of days kept from school _____

Signature of teacher _____

APPENDIX C

FIRE DRILLS

In summary, the purpose of fire drills may be stated as follows:

1. To regulate behavior.
2. To assist in the formulation of safety habits.
3. To train pupils to leave the building in a swift, orderly manner.

In a well regulated school system, printed or mimeographed material pertaining to fire drills, and pupil conduct during an emergency will be available. This information will embody the following:

1. Plan of building.
2. Room and corridor exits.
3. Number of marching columns and exits to be used.
4. Distance pupils are to go from building and conduct while doing same.
5. Return to building signal.
6. Walk, never run or push.
7. Absolute silence.

It is desirable to discuss the fire exit plan during home room periods. The following questions may be asked during the discussion:

1. Why should running be prohibited?
2. Why should the alarm be sounded when you are in the corridors?
3. Why should you stop talking when the alarm is sounded?
4. Is it necessary to have absolute silence during a drill?

APPENDIX D

FIRST AID SUGGESTIONS[1]

Prevention is always the best first aid. However, some accidents do happen on the highway, in the field, or in the home. The person who knows how to meet these emergencies may save a limb, an eye, or a life.

First Aid is the immediate, temporary treatment given in cases of accident or sudden illness before the services of a physician can be obtained. The first-aider's job ends when the physician arrives.

There are three principal objectives of first aid: (1) To prevent accident; (2) To teach the individual to be able to recognize and determine the nature and extent of an injury; (3) To train the first-aider to do the proper thing at the proper time; and likewise, to teach him what not to do.

This section gives important points on first aid for the average person. Artificial respiration is not covered here because, to make a proper study of it, the student should be in a class supervised by a physician or a qualified Red Cross first-aid instructor.

WOUNDS. Any break in the skin is a wound. Regardless of how small a wound may be, thousands of germs can enter. There are two purposes in treating every wound: (1) to sterilize it and thereby kill the germs that are present; (2) to cover it with a sterile dressing, held in place

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1 Selected First Aid Manuals

by a bandage, to prevent other germs entering. As germs begin to work within a wound in six hours, this immediate treatment is exceedingly important.

Wounds are of three types: incision wounds made by a knife or sharp instrument, lacerations or tears, and puncture wounds.

Incision wounds generally bleed freely and thereby help wash germs from them. They should be allowed to bleed a normal amount. Then apply one-half strength (3½ percent) tincture of iodine once only. Allow to dry. Then apply sterile dressing and hold in place with a bandage.

A physician should always be consulted if the wound is of a serious nature.

By all means, never run water over the wound, as water washes germs into it.

Do not place an ordinary cloth next to a wound. Sterile gauze should be used. Or, a white, clean cloth that has just been ironed and not touched by human hands will do.

Do not place adhesive tape on a wound. It will cause festering. Tape is to be used in holding bandages or dressings in place.

Severe bleeding results from some wounds. If blood comes in spurts and is bright red, it indicates that an artery has been cut. If the blood is dark and the flow sluggish, it indicates that a vein has been cut.

It is necessary to stop the bleeding when there has been a deep cut, or when a limb has been taken off, or when a limb has been crushed and is swelling fast.

The patient must always be kept quiet and warm.

Pressure is the best way to control bleeding. If it is arterial

bleeding, pressure should be applied between the wound and the heart. If it is venous bleeding, pressure should be applied between the wound and the extremity.

The tourniquet is dangerous but sometimes necessary. The danger lies in the fact that it shuts off blood to the part. If used it should be loosened every 15 or 20 minutes to allow a supply of blood to flow into the member. If bleeding does not start again, do not tighten the tourniquet. If it does, allow the artery to spurt three or four times before shutting it off.

A cravat bandage is best for a tourniquet. Wrap it twice around the member if possible and tie a half knot. Place a short stick over the knot and tie a square knot. Place a pad over the artery and under the tourniquet at the point pressure should be applied. Tighten slowly and no more than necessary to stop bleeding.

Punctured wounds need special attention. A rusty nail, a bite by a cat, are liable to cause tetanus infection, lockjaw. Tetanus germs are plentiful, especially about barns, roads and streets. The rusty nail carries the tetanus germs into the wound. The cat's teeth do the same.

Punctured wounds do not bleed readily. Bleeding should be encouraged by "milking" the wound, thereby washing out as many germs as possible. Treat with tincture of iodine, being certain that it is well into the wound.

Powder burns are punctured wounds. The particles of powder burn little holes in the skin and tetanus germs enter.

Punctured wounds should always be treated by a physician.

In case of dog bite, shut the dog up a week to see if it develops

rabies. If it does, the patient must be treated for hydrophobia. Always consult a physician.

In case of snake bite, a tourniquet applied above the wound just tight enough to stop the flow in the veins, but not enought to stop the flow in the arteries, will keep the poison from going to the heart and make bleeding stronger. Cut the wound with a knife, then make little "x" cuts around it, thereby encouraging bleeding to wash the poison out. The wound can be sucked with the mouth if there is no wound in the mouth, and if the blood and poison are immediately spit out. Get a doctor. Keep the patient as quiet as possible. Use no stimulants.

BURNS. Burns are a type of wound. They are classified as three kinds: First-degree burns, in which the skin is reddened; second-degree burns, in which the skin is blistered; and third-degree burns, in which the tissue is charred or cooked.

In the first-degree burns, where the danger of infection is negligible, any clean material which relieves pain is sufficient, such as soda in water, a good ointment, or vaseline.

Second- and third-degree burns are different. The skin is open, and therefore they must be considered wounds.

Do not use material on these burns which might carry in germs. The wound is already sterile, and iodine should never be used. Take the same precautions as when dressing an open wound. Never put cotton next to a burn; it sticks.

Picric acid gauze is one of the most satisfactory dressings. If this is not obtainable, sterile gauze soaked in boiled water to which a tablespoon of soda or two tablespoons of Epsom Salts has been added, is

good. Keep warm and moist until medical aid is obtained.

Severe sunburn is dangerous. It many times blisters and becomes a second-degree burn. Treatment is that of a second-degree burn.

In all severe burns secure the services of a physician as soon as possible. Infection may set in.

BROKEN BONES. There are two kinds of fractures: simple and compound. The compound fracture is one in which the bone is broken and protrudes through the flesh and skin. In the simple fracture it does not.

Make the injured person comfortable. Cover to keep warm. Watch for severe bleeding. Send for a doctor and do not move the patient unless absolutely necessary. If he must be moved, make a splint of some rigid or semirigid material for the support of the fractured part.

If the fracture is in the lower arm, use a board splint long enough to reach past the elbow and wrist. Wrap splint with bandages so as not to press on the point of fracture. Bind arm to it and place in sling. Newspapers will also do as a splint.

If it is the upper arm, support it with a sling and leave further treatment to the doctor.

If the collarbone is broken, use a sling for support. Let the forearm rest against the body at the waist and secure it with safety pins.

If the thigh is broken, a long splint which will reach from the armpit to the heel should be used on the outside. Another should be placed on the inside from the crotch to the foot. If a board cannot be secured for the inside, tie the legs together. The splints should be about three

and one-half inches wide and should be well padded. Fasten them with cravat bandages or strips of cloth at the ankle, above and below the knee, and about the body.

If the kneecap is broken, place a board at the back of the leg extending from the heel to the hip, and tie.

If the lower leg is broken, take two boards long enough to reach from the heel to above the knee. Place one on the outside and one on the inside of the leg, and tie. Be sure to have splints well padded, with a gap at the point of fracture.

If the head is injured, place the injured person on his back with his head slightly raised. If blood is oozing from his ear, mouth, or nose, place the head so the bleeding side is down. Cover and keep warm to prevent shock.

In all cases rush medical aid. Remember, the first-aider is to care for the patient until a physician arrives.

If a bone is broken and protruding through the flesh and skin -- a compound fracture -- never push it back in. Cover it with sterile gauze and do not move it. If there is much bleeding, stop the hemorrhage by methods already described, and get the doctor as soon as possible.

MOVING INJURED PERSONS. The less an injured person is moved, the better. However it is necessary in many cases that he be moved before a physician arrives. Extreme care should always be used. The injury to the patient caused by the move (if done improperly) is often worse than the original injury.

If the spine is injured, a wide board, door, or very rigid stretcher must be used. The patient must be kept lying on his back and moved no

more than absolutely necessary. Keep the body in a straight line when lifting. Never prop the patient up.

For most injuries a stretcher may be improvised by rolling sticks into a blanket from the two sides. If sticks are not available the blanket may be rolled tightly from the two sides. Three persons on each side the stretcher can then hold it rigid and carry the injured person with the least liability of injury.

In case of fracture of the pelvis, which occurs in many automobile accidents, the patient must be handled very carefully. Blood-vessels and organs within the pelvis, especially the bladder, are liable to be injured. A rigid stretcher, door or board, must be used if the patient is to be moved. Knees and ankles should be bandaged together, with the knees either straight or bent, depending upon which is comfortable for the patient.

SPRAINS. Sprains are always at a joint, the ankle being the most common. There is pain in the injured joint and usually swelling begins immediately. The severity ranges from those in which the patient only limps for a few minutes to those where ligaments are torn and the member cannot be used for weeks.

The injured part should be elevated and hot or cold applications applied. Heat is generally more advisable, as cold sometimes causes shock to older persons. If severe the person should not use the member until a physician is consulted.

EYE INJURIES. Eyesight is precious. Once lost, it can seldom be regained. It is therefore of utmost importance that an injured eye be cared for by a doctor.

Foreign bodies which most frequently get into the eye are particles of dirt, sand, cinders, glass, emery dust, or fine pieces of metal. They usually do not cause a wound, but merely lodge on the lid or eyeball. If the body is sharp or has enough force behind it, it may wound the eye.

Never rub the eye. Rubbing embeds the object deeper into the eye tissue and causes a worse injury.

Close the eye and, grasping the lashes of the upper lid, pull it out and down over the lower lid. This gives the tears a much better chance to wash the object to the inside corner where it can be removed with sterile gauze or a clean handkerchief. This may be repeated a time or two.

If the object is not removed do not work further with the eye. Place a drop or two of clean olive oil, mineral oil, or castor oil in it. Bandage it with a cold, wet compress.

Get the patient to a physician as quickly as possible.

Splinters in the eye should not be pulled out. Call a physician.

Chemicals in the eye, such as lime, plaster, cement, acids and potash should be washed out thoroughly with quantities of water.

The best first aid is prevention. Whenever a person is working at an occupation or a duty where there is a liability of an eye injury, he should take every precaution. If he is running an emery wheel he should always wear goggles. If he is breaking rocks with a sledge he should wear suitable goggles. If he is exposing his eyes to unnatural bright light he should protect them by colored lenses. If he is operating a

tractor where dust is bad it is well to wear goggles of the proper type.

In case of injury, consult a physician.

UNCONSCIOUSNESS. Classifying unconsciousness into three groups aids in its treatment. The three classes are red, white, and blue.

RED UNCONSCIOUSNESS. Chief symptoms: Red or flushed face and strong pulse. Treatment: Place in lying position, head slightly raised, keep quiet. Apply cold applications to the head. Loosen any tight clothing around the neck.

Give no stimulants. Have just enough heat to keep patient warm.

Transport carefully in lying position.

WHITE UNCONSCIOUSNESS. Chief symptoms: Pale face, weak pulse.

Treatment: Keep quiet in lying position, head level or low. Apply external heat.

Use inhalation stimulants if there is no bleeding and no head injury.

Transport carefully in lying position.

BLUE UNCONSCIOUSNESS. This occurs in case of drowning, suffocation by carbon monoxide gas, being overcome by gas. Apply artificial respiration. Call a physician.

SHOCK. Some degree of shock follows most injuries. The patient may or may not be conscious. Symptoms may appear immediately or may not become evident for several hours. In cases of persons injured in automobile accidents or by machinery it is always well to keep the injured person quiet and warm.

Symptoms:

The face is pale and has an anxious expression.

Cold perspiration appears on the forehead and palms of hands.

Pulse is rapid and weak.

Severe chill often develops.

Keep the patient warm, and lying on his back with his head low. Do not have the patient sit up except in case of chest injuries or nose bleeding.

If the patient is conscious and not bleeding, stimulants of coffee or tea, as hot as it can be comfortably taken, are many times quite beneficial. Never try to make an unconscious person drink.

FAINTING. A sudden shock from fright, the sight of blood, etc., often cause fainting. If you feel faint, lie down before you fall down.

If a person faints into unconsciousness, lay him on his back, with his head low. Give him plenty of room so he can have fresh air. Sprinkle his face with cool water. Hold aromatic spirits of ammonia close to his nose when he breathes in.

After he is revived from the faint, give him one-half teaspoonful of aromatic spirits of ammonia in a little water, and cold water to sip.

POISONS. If someone has taken poison, the situation demands immediate action. Have someone call a physician, and, in the meantime, administer first aid.

Prevention is the best precaution, and all drugs kept about the home should be kept out of the reach of children and should be properly labeled.

Never take medicine in the dark when you can not see the label on the bottle.

A person who has taken poison may have pain in the stomach, may vomit and have cramps. If it is a corrosive poison the tongue and mouth may be burned or stained.

To dilute and wash out is the best and most effective method of treatment. Use warm water with soapsuds, salt water, soda water, dish water, or milk. Make the patient d

the

or three times.

After the stomach is washed out a large dose of Epsom Salts in two glassfuls of water is good treatment for almost any poison.

Stimulants may be given if the patient is showing symptoms of shock. Also, heat may be applied.

Treatment for food poisoning, commonly called ptomaine poisoning, is treated the same as drug poisoning. Uncomfortable feeling in the upper abdomen, cramps, pain, nausea and vomiting, and more or less prostration are the chief symptoms.

COMMON AILMENTS.

Blisters may be cared for by applying a small amount of tincture of iodine at the edge of the blister. Heat needle in a flame and puncture blister at the edge. Gently press it until the water or blood is pushed out. Apply a sterile dressing. If it shows signs of infection, see a doctor.

Boils should never be squeezed. A hot salt solution may be applied to relieve the pain and hasten formation of pus. Boils should be opened

by a physician. Consult one early. Be careful not to let pus touch other parts of body and cause boil to spread.

Colds are more common than other diseases. During epidemics they are especially contagious. Undue exposure lowers the body's resistance and gives the germs, which are almost ever-present in the nose and throat, an opportunity to take hold. For treatment, get plenty of sleep, take a laxative such as Epsom Salts or milk of magnesia. Bicarbonate of Soda, a rounded teaspoonful every two hours for three doses, often helps. Take a hot bath, drink hot lemonade or other warm drink before going to bed. If there is not marked improvement, and the cough or fever persists, call a physician.

APPENDIX E

CHECK-LIST FOR COMMON HAZARDS

In and About the Home

1. Floors and Stairways (check yes or no)

   a. Are they kept clear? ..... _____

   b. Are they in good repair? ..... _____

   c. Are they well lighted? ..... _____

   d. Are they secure from slipping? ..... _____

   e. Are losse rugs anchored? ..... _____

2. Porches and Balconies

   a. Have they secure railings? ..... _____

   b. Have they solid foundations? ..... _____

   c. Have they level floors? ..... _____

   d. Is screening secure? ..... _____

3. Appliances and Equipment

   a. Are gas burners properly adjusted? ..... _____

   b. Are connections free from leakage? ..... _____

   c. Is electric wiring insulated? ..... _____

   d. Are switches at safe locations? ..... _____

   e. Are all appliances shockproof? ..... _____

   f. Have you a strong, safe stepladder for reaching heights? ..... _____

   g. Is a rubber mat provided for the bathtub to prevent slipping? ..... _____

4. Sharp tools and Instruments (check yes or no)

   a. Are they kept in safe places? ..... _____

   b. Are they used with due care? ..... _____

5. Toys

   a. Do toys have sharp points and edges? ..... _____

   b. Are toys put away after use? ..... _____

6. Fires

   a. Has chimney been cleaned recently? ..... _____

   b. Are pipes safely located - connected? ..... _____

   c. Is fireplace screened? ..... _____

   d. Are metal boxes provided for storing matches out of the reach of children? ..... _____

   e. Do you, if possible, go out of doors to clean garments and use non-inflammable cleaning fluids? ..... _____

   f. When clothes are being dried, are they hung at sufficient distance from stoves or open fires to prevent ignition? ..... _____

7. Trash and Rubbish

   a. Are they properly disposed of? ..... _____

   b. Are safe containers used? ..... _____

   c. Is broken furniture discarded? ..... _____

8. Firearms

   a. Are firearms kept unloaded? ..... _____

   b. Are they out of reach of children? ..... _____

9. Foods

   a. Are foods protected from flies and dust? ..... _____

9. Foods (continued) (check yes or no)

b. Are perishable foods kept cool? ..... _____

c. Are hot containers safely placed? ..... _____

10. Poisons

a. Are poisons safely stored? ..... _____

b. Are containers clearly labeled? ..... _____

11. Garage

a. Are garage doors kept open while motor is running? ..... _____

b. Do you promptly remove oily rags or other inflammable materials from the garage or keep them in fireproof containers? ..... _____

12. Yard

a. Are sidewalks and steps kept in good repair and clear of objects over which people may trip? ..... _____

b. Is ice or snow removed promptly or covered with salt, ashes, or sand? ..... _____

c. Is it a safe place for children to play? .. _____

APPENDIX F

CHECK-LIST FOR COMMON HAZARDS

ON THE FARM

1. Machinery (check yes or no)

   a. Have you read printed warnings attached to new machinery? ..... _____

   b. Is machinery kept in good repair? ..... _____

   c. Is it kept well oiled? ..... _____

   d. Is it used only be experienced operators? . _____

   e. Is is used with due care? ..... _____

   f. Are children kept away from dangerous machinery? ..... _____

2. Tools and Equipment

   a. Is there a place for everything? ..... _____

   b. Is everything in its place? ..... _____

   c. Are sharp and jagged tools hugn flat against the wall? ..... _____

   d. Are hammering tools solid in handles? ..... _____

   e. Is hay-hoisting equipment in good shape? .. _____

   f. Are ropes strong and serviceable? ..... _____

   g. Are pulleys securely fastened? ..... _____

   h. Are carriers kept oiled? ..... _____

   i. Are ladders safe? ..... _____

3. Yard

   a. Is yard cleared of outworn machinery? ..... _____

(check yes or no)

b. Are wells and cisterns properly covered? ..... _____

4. Farm Home

(Use check list already mentioned)

5. Buildings

a. Are all buildings in good repair? ..... _____

b. Are decrepit structures torn down or restored? ... _____

c. Are doores high and wide enough? ..... _____

d. Is entrance to hay-loft protected by railing? .... _____

e. Are trapdoors kept closed? ..... _____

f. Are stairs too steep? ..... _____

g. Are steps too narrow? ..... _____

h. Are wall-ladders secure? ..... _____

i. Is there ample fire protection? ..... _____

j. Are lanterns securely hung in safe places? ..... _____

k. Is gasoline stored at safe distance? ..... _____

l. Have you read Farmer's Bulletin on Spontaneous Combustion issued by U. S. Dept. of Agriculture?.. _____

6. Animals

a. Are dangerous animals, such as bulls and boars, secured to prevent injuring people? ..... _____

b. Are all pens, stalls, fences, safely constructed? ..... _____

c. Are animals spoken to when their stalls are entered? ..... _____

d. Are pets, such as calves and colts, handled with care by children? ..... _____

e. Are animals with young protected from annoyance? . _____

APPENDIX G

Kansas City, Missouri, schools are considered as pioneers in the field of safety education. The council constitution in effect in that city seems most applicable to all schools and is recommended as a model.

JUNIOR SAFETY COUNCIL ORGANIZATION[2]

Article 1.-Name

The name of this organization shall be the Junior Safety Council of _____School.

Article 2.-Object

The objects of this organization shall be to help the pupils of _____School in the prevention of accidents and dangerous practices by making attractive the idea of thoughtfulness for others and proper care of their own actions.

Article 3.-Membership

There shall be two classes of membership, active and associate.

(a) Active membership shall consist of two representatives from each 4th, 5th, 6th, and 7th grade room elected semi-annually by the pupils of the room. Where so desired pupils can be selected from the 2nd and 3rd grades; also where the school is small a greater number should be taken from each room.

(b) Associate membership shall be open to any other pupil in the 4th, 5th, 6th, and 7th grades who may give to the Council adequate proof that he lives up to the rules as hereinafter provided for. Here again the 2nd and 3rd grades may be included. Members should be required to fulfill the requirements anew each year before being admitted to associate membership.

(c) All other pupils in the school will participate in class room activities and vote on all matters referred back to the room.

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2 A Course in Safety Instruction and Training. Kansas City, Missouri, Kansas City Public Schools, 1927

Article 4.-Officers

(a) Officers shall consist of a President, Vice-President, Secretary and Captain of Patrols.

(b) The first three of these officers shall be elected semi-annually by the Council from the list of active members.

(c) The Captain of Patrols shall be appointed by the President of the Council in cooperation with the principal.

(d) Elections shall be held semi-annually, the first in September and the second in January.

Article 5.--Membership Requirements

Any pupil may be admitted to associate membership when he has:

(a) Learned the safety pledge.
(b) Observed the safety code as listed, for three weeks.

Article 6.-Admission

Associate membership should be the goal of every student in the school. Candidates for such membership shall appear before an open meeting of the Council and present proof of their fitness for membership. They may be admitted upon two-thirds vote of the members present. The principal of the school reserves the right of decision in case of questionable proof.

Article 7.-Insignia

(a) Active members shall be provided with a Junior Safety Council button by the Kansas City Safety Council.

(b) Patrols shall be provided with a patrol button, also to be supplied by the Kansas City Safety Council.

(c) These buttons may be worn at all times and shall constitute a badge of authority amongst the children of the school in regard to warnings against unsafe practices.

(d) Associate members shall be supplied with an associate membership button by the Kansas City Safety Council.

(e) Active members or associate members may have their buttons taken away from them by the principal for reported violation of any part of the Safety Code or Pledge. Each member is to be responsible for his button and is not to be provided with another in case of loss except in payment of the cost.

Article 8.-Patrols

(a) Members of the Patrol shall be appointed by the captain with approval of the president and the principal and shall be either active or associate member of the Council.

(b) Duties of members of this group shall be: To guard dangerous street crossings (standing on the curb and not in the street) and report violations of the safety rules; to assist younger children; to warn all children of dangers; to give STOP and GO signals to pupils crossing street; to see that pupils keep within the pedestrial lanes at intersections; to assist the principal. Street patrols are not to stop traffic.

Article 9.-Committees

The Junior Safety Council work functions best with a group of specific committees handling the various activities. The following are suggested as possible committees for the work:

(a) MEMBERSHIP. To receive application for associate membership, to check up as to qualifications, and make report to the Council.

(b) PUBLICITY, SLOGANS, AND BULLETIN BOARDS. To gather material showing how accidents happen, for the benefit of the pupils. To have charge of slogans to be placed on blackboards, and if a bulletin board is kept in the school, to have charge of placing the material on same.

(c) ACCIDENTS. To receive reports on accidents for members.

(d) INSPECTION. To make regular inspection of buildings and grounds and locate any possible hazards. Inspection committee should inspect blackboards and make reports of various slogans and varieties of safety work on exhibition on bulletin boards or elsewhere.

Article 10.-Suggested Activities Daily

The following are among the suggested activities which can be carried on by the membership of the Council. For these activities both active and associate members should be used. It will be found that many of these activities will be governed by the committees heretofore referred to.

(a) Guarding stairways in the schools at all times when desired by the principal.

(b) Acting as patrols on playgrounds, guarding against dangerous play.

(c) Acting as patrols at dangerous corners (standing at curb and not in the street) assisting children to cross in orderly fashion.

(d) Reporting hazards in the vicinity of school.

(e) Aiding the principal in any way at any time as desired.

(f) Active members of Council acting as a Court for the trial of those pupils guilty of violation of safety regulations. (This has been found extremely effective.)

Weekly

(g) Officers of the Council shall attend to special reports of accidents on cards furnished for that purpose and report same to Council at school and to city Junior Safety Council.

Monthly

(h) Meeting. The entire School Council shall hold a monthly meeting, at which time pupils giving proof of worth may be admitted to associate membership. At this meeting a discussion of safety work, talks by police and fire officers in uniform shall be carried on according to a program which may be mapped out by the principal in cooperation with the Kansas City Safety Council. It is hoped that this meeting will take place at such times as will make possible the inviting of parents.

(i) Report. A written report on the form provided for that purpose should be made not later than the second of each month covering the preceding month's activities and mailed to the Kansas City Safety Council. Report should be filled in completely.

Semi-annual

Semi-annual meetings shall be held in each school the first week in September and the second in January, at which time active members of the Council shall be elected and officers chosen.

Occasional

Members shall have mass meetings at such times and in such central places as the Kansas City Safety Council shall name, with entertainment furnished by the Kansas City Safety Council.

Article 11.-Pledge of the Junior Safety Council

It will be necessary for every active and associate member to learn the Safety Pledge, which pledge should be recited at every Council meeting:

I will work for the safety of others as I would want them to work for my safety.

I will try to be careful all the time, everywhere.

I will not take unnecessary chances of getting hurt, and will warn others against doing so.

I will do MY PART to help reduce the number of accidents this year.

All this I will do for the sake of humanity and the honor of my school.

Article 12.-Safety Code for Associate Members

The observance of this code will eliminate many accidents. Its general observance will be required of every member of the Safety Council, and its violation will be cause for loss of membership in the Council.

In School

1. KEEP TO THE RIGHT on walks, in halls, going up and down stairs.

2. Go up and down stairs ONE STEP AT A TIME.

3. Look where running.

4. Do not bully the little fellows.

Out of School

5. Do not play on streets where the street cars run.

6. LOOK BOTH WAYS in crossing streets and railroad tracks.

7. LOOK SHARP for automobiles, wagons, and motorcycles when alighting from a street car.

8. Do not walk on railroad bridges or tracks.

9. Do not loiter around railroad stations or cars.

10. Be ever ready to assist aged people, cripples and little children to avoid danger at street crossings and in boarding or leaving cars, trains, or other vehicles.

11. Do not hitch on or steal rides on street cars, automobiles or wagons.

12. Never use roller skates, skatemobile, or coaster wagons near street car tracks or where many automobiles run.

13. Do not jump off moving trains, cars, or engines, and do not crawl under, over, or between cars.

14. Look out for automobiles turning corners.

15. Look where going and keep to the right.

16. Look and listen for DANGER SIGNALS and HEED them.

17. Say: "Any wire may be a live wire. Don't touch it."

18. Keep eyes on a scratched match till sure the spark is dead.

19. Never leave a camp fire till sure it's out.

20. Do not THROW STONES. It is a DANGEROUS AND USELESS habit.

21. Try to do at least one GOOD TURN for SAFETY every day.

22. PLAY SAFE, as much for the other fellow's sake as for your own.

23. THINK SAFETY--not part of the time, but all the time.

24. Let your motto be: "Better safe than sorry."

25. Have the Safety Habit.

Article 13.-Amendments

This constitution may be amended at any regular meeting of the Junior Safety Council by a two-thirds majority. Such amendments must be submitted at a regular meeting of the Council and read to the Council.

APPENDIX H

PATROL DUTIES

The following patrol duties are worthy of a place in the safety education program of every high school:

1. Reporting of accidents to advisor.
2. Allocate playground space.
3. Inspection of equipment.
4. Keep playground free from waste and broken glass.
5. Provide parking space for bicycles and automobiles.

Safety instruction pertaining to traffic regulations may embody the following:

1. School bus.
2. Bicycle or motorcycle.
3. Street car.
4. Family car.

The precautions necessary to avoid possible accidents involving the vehicles listed above are similar, and will be listed as a single unit.

1. Avoid rough play while waiting for bus.
2. Stand on curb, and not in the street.
3. Do not run in front of bus, or hurry across street when bus arrives.
4. Loading of bus should be in a quiet and orderly manner.
5. Pupils should be aboard before bus leaves school building.
6. No pupil should be permitted to enter or leave while the bus is in motion.

7. Pupils should not be permitted to stand in aisle or interfere with actions of driver.
8. Pupils using motorcycles or bicycles should proceed at moderate rate of speed, being careful not to endanger their lives or the lives of others.
9. Pupils should remain on curb while waiting for street car.
10. Pupil passengers should not be permitted to stand on front or rear platforms of street cars.

Parents depend upon school officials for means of child protection while at school. This constitutes no small problem of responsibility. Local school officials may contribute to the promotion of safety education by enlisting the aid of the State Department of Education in formulating and enacting laws which will place school patrols under state control.

APPENDIX I

PROGRAM SUGGESTIONS

Several types of programs which are adaptable to any school having a platform or stage are listed below.

Fire Prevention

Fire, Man's Greatest Friend and Enemy ----------Student

Demonstration of How to Turn in a Fire Alarm ----------Student

Some Common Causes of Fire ----------Student

Dramatization of Methods of First Aid in Fire ----------Scouts

Burn	Smoke
Scald	Falling articles

How the Community is Organized for Protection Against Fires ----------Student

Common Methods of Fighting Fires ----------Four Students

Water	Sand
Wet Blankets	Chemicals

Explanation of Demonstration of the Use of Hand Extinguishers ----------Student

In Summary - What You Can Do ----------Student

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3 McKown, Harry C., Assembly and Auditorium Activities, p. 339

The Trial of Fire[4]

A mock trial ----------may be staged around the subject of 'Fire' one of man's best friends, has gone on a wild spree and wantonly destroyed a great deal of property. He is captured and brought to trial. He pleads guilty and puts the blame on some old cronies of his downfall. He then tells of his relations with these former friends, 'Carelessness', 'Rubbish', 'Cigarette', 'Spontaneous Combustion', 'Short Circuits', and 'Gas'. The judge, knowing of his virtues, paroles him for as long as he behaves properly. Actual figures on the losses caused by fire, in the local community, will be worth more than a dozen sermons on the

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4 McKown, Harry C., Assembly and Auditorium Activities, pp. 339-340.

APPENDIX J

SCHOOL BUILDING PATROLS

School Building Patrols.--Since the street work requires so much time, it is best to appoint an entirely different group of pupils to school building and yar patrol duty. The members of this patrol will be selected in the same way as those on street duty. The captain and principal will study conditions within the school building and yard and assign patrols to duty when and where the need is found. Where pupils proceed about their business in proper and orderly manner, the patrol may not be needed. The work may embrace any or all of the following:

1. Corridor duty in keeping traffic between classes moving to the right and in orderly manner.

2. Stairway duty in keeping traffic moving toward the right; to prevent pushing, running or taking more than one step at a time.

3. Exit duty in expediting dismissal, particularly when students line up and leave in groups according to the location of home.

4. Coat room duty in seeing that room is kept orderly and that there is no unnecessary loitering or rough play.

5. Lunch room duty in keeping order, directing traffic entering and leaving room and lines at cafeteria.

6. Assembly duty in ushering at all assemblies and school entertainments, and seeing the assembly room is left in order after meetings.[5]

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5 Stevenson, Idabelle, Safety Education, 1931, pp. 46-51

APPENDIX K

SENIOR SAFETY COUNCIL[6]

Article 1.--Name

The name of this organization shall be known as the Senior Safety Council of _____School.

Article 2.--Object

The object of this organization shall be to assist pupils in the prevention of accidents, to protect property, and to increase the safety morals within the school.

Article 3.--Membership

There shall be two classes of membership, active and associate.
(a) Active membership shall consist of (number of representatives) from grades (10-11-12) or (9-10-11-12), elected by popular vote by the members of their class. They shall be responsible to their class and shall report to them the actions and recommendations of the Council.
(b) Associate membership will be available to any pupil who is interested in the safety movement, providing he subscribes to the purposes of the organization.

Article 4.--Officers

The officers shall consist of a President, Vice President, and Secretary.
(a) The president shall preside at the meetings of the council, represent the council in the student senate, and appoint committees.
(b) The vice president shall assist the president and take the president's chair when he cannot be present at the meetings. The vice

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6 A Course in Safety Instruction and Training, Kansas City Missouri, 1927

president will act as captain of patrols.

(c) The secretary will record the minutes of every meeting and shall be in charge of official correspondence.

Article 5.--Insignia

The insignia shall be (pattern).

Article 6.--Meetings

The council shall meet every two weeks at _____ o'clock in _____. Open meeting for the entire school will be held semi-annually.

Article 7.--Committees

Activities of the council shall be carried on by committees. Chairmanship of each committee shall be for a period of one semester. Committees may be changed twice each semester. Committee duties are as follows:

(a) Accidents--to receive reports from associate and active members.

(b) Patrols--appoint patrolman in and around the building for the purpose of regulating behavior in accordance with safe practices.

(c) Inspection--to inspect school property and make recommendations for removal of possible hazards.

(d) Publicity--to gather material showing how accidents happen and to place this material on bulletin boards, blackboards and other receptacles for the benefit of the pupils.

(e) Special committees may be appointed whenever necessary.

Article 8.--Supervision

Active or associate members of the council may be suspended or dropped for failure to observe safety codes.

Committees[7]

1. School committee
2. Church committee
3. Parent Teacher Association committee
4. Parade and Rally committee
5. Stunts committee
6. Publicity committee
7. Special contests committee
8. Manufacturing committee
9. Club committee
10. Lodge committee
11. Police and fire committee
12. Boy Scout committee
13. Girl Scout committee
14. Other civic organization committees.

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7 Seven Days for Safety, National Safety Council, Chicago, 1929, pp. 16-18

APPENDIX L

SLOGANS (compiled)

1. A live wire may mean a dead man.
2. Safety Counts--Keep Adding.
3. When attention is divided, accidents multiply.
4. Eye Every Exit.
5. Cultivate constant caution.
6. Safety is contagious--Catch it.
7. Faulty flues feed fires.
8. Better be careful than crippled.
9. A safe hill has no traffic.
10. Crossed wires cause fires.
11. S. O. S. --Stay on Sidewalks.
12. The chance taker is the accident maker.
13. A good driver believes in signs.
14. Courtesy is good sportsmanship.
15. Stick to safety and you will stick around.
16. Carelessness is the mother of catastrophe.
17. More recreation--Less wreck-creation.
18. A match may be down but not out.
19. Safety Spells Success.
20. Two good legs are worth a thousand crutches.
21. Fire finds filth.
22. Safety saves sickness, suffering, and sadness.
23. Forethought is better than afterthought.
24. Better cause a delay than an accident.
25. Careful today--Alive tomorrow.

Typed by: Lucy W. Victor